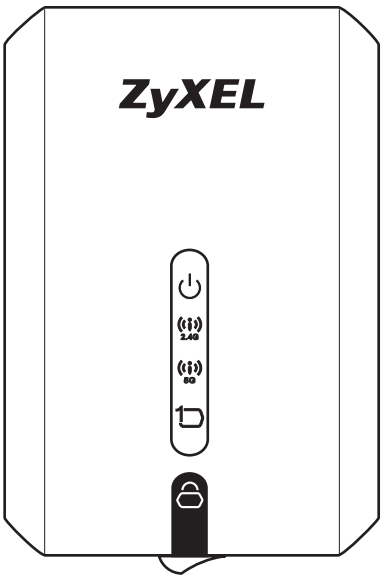
WRE6505

Wireless AC750 Range Extender

Version 1.00
Edition 1, 4/2014



User's Guide

Default Login Details	
LAN IP Address	192.168.1.2
User Name	admin
Password	1234

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IMPORTANT!

READ CAREFULLY BEFORE USE.

KEEP THIS GUIDE FOR FUTURE REFERENCE.

Related Documentation

- Quick Start Guide

  The Quick Start Guide shows how to connect the WRE6505 and access the Web Configurator wizards. (See the wizard real time help for information on configuring each screen.) It also contains a connection diagram and package contents list.

Note: It is recommended you use the Web Configurator to configure the WRE6505.

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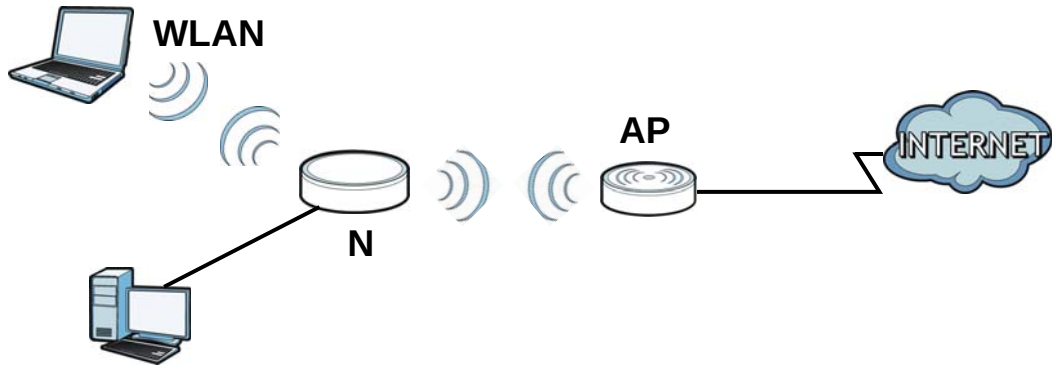
PART I
User's Guide

1 Introduction

1.1 Overview

The ZyXEL WRE6505 Wireless AC750 Range Extender allows you to easily extend existing 802.11 b/g/n/ac wireless networks fast and easy. WRE6505 directly into a power outlet and the LED signal strength indicator allows you to determine the ideal installation location. The one-click Wi-Fi Protected Setup (WPS Button on page 12) provides frustration-free wireless client setup and completes the instant network access setup.

Figure 1 Universal Repeater



Your can create the following connections using the WRE6505:

- **LAN**. You can connect network devices via the Ethernet port of the WRE6505 so that they can communicate with each other and access the Internet.
- **WLAN**. Wireless clients can connect to the WRE6505 to access network resources.

Use a (supported) web browser to manage the WRE6505.

See Chapter 7 on page 37 for more information.

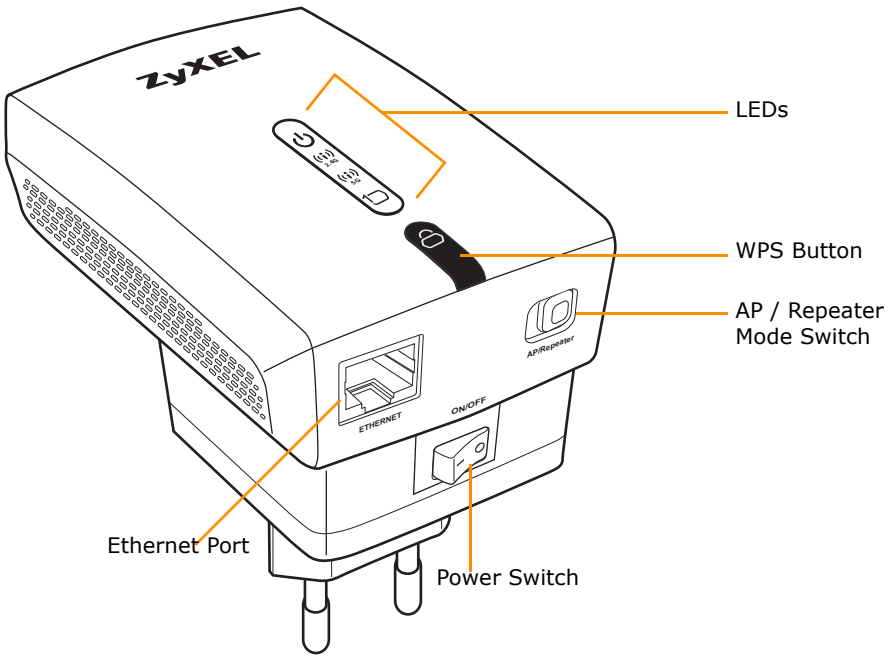
1.2 Securing the WRE6505

Do the following things regularly to make the WRE6505 more secure and to manage the WRE6505 more effectively.

- Change the password. Use a password that's not easy to guess and that consists of different types of characters, such as numbers and letters.
- Write down the password and put it in a safe place.
- Back up the configuration (and make sure you know how to restore it). Restoring an earlier working configuration may be useful if the device becomes unstable or even crashes. If you forget your password, you will have to reset the WRE6505 to its factory default settings. If you backed up an earlier configuration file, you would not have to totally re-configure the WRE6505. You could simply restore your last configuration.

1.3 Front Panel

Figure 2 Front Panel



The following table describes the LEDs and the WPS button.

Table 1 Front Panel LEDs and WPS Button

LED	STATUS	DESCRIPTION
Power	On (Green)	The WRE6505 is receiving power and functioning properly.
	Blinking (Green)	The WRE6505 is booting or resetting to factory defaults.
	Off	The WRE6505 is not receiving power.

Table 1 Front Panel LEDs and WPS Button (continued)

LED	STATUS	DESCRIPTION
Wi-Fi 2.4G		The device uses two LEDs to generate the following three signal colors: • Red: signifies a signal strength under 50% • Orange: signifies a signal strength under 75% • Green: signifies a signal strength over 75%
	Repeater mode	
	On	WLAN signal detected.
	Blinking	The WRE6505 is sending/receiving data through the wireless LAN.
	Off	The wireless LAN is not ready or fault detected.
	AP mode	
	On	WLAN is powered on.
	Blinking	The WRE6505 is sending/receiving data through the wireless LAN.
	Off	WLAN is off.
Wi-Fi 5G		The device uses two LEDs to generate the following three signal colors: • Red: signifies a signal strength under 50% • Orange: signifies a signal strength under 75% • Green: signifies a signal strength over 75%
	Repeater mode	
	On	WLAN signal detected.
	Blinking	The WRE6505 is sending/receiving data through the wireless LAN.
	Off	The wireless LAN is not ready or fault detected.
	AP mode	
	On	WLAN is powered on.
	Blinking	The WRE6505 is sending/receiving data through the wireless LAN.
	Off	WLAN is off.
LAN	On (Green)	The WRE6505 has a successful 10/100MB LAN connection.
	Blinking (Green)	The WRE6505 is transmitting data.
	Off	Link is off.
WPS	On (Blue)	This remains on for 5 minutes after a successful WPS connection has been established.
	Blinking (Blue)	The WRE6505 is waiting for another WPS device to connect.
	Off	There is no WPS connection established.

1.4 WPS Button

The WPS button can be used to begin Wi-Fi Protected Setup (WPS), reboot the WRE6505 while keeping it's configuration or reboot the WRE6505 to factory default configuration.

Table 2 WPS Button Functions

ACTION	RESULT
Push once or hold for less than 5 seconds	**AP Mode:** Press (less than five seconds) to connect to a client. See Section 1.4 on page 12. **Repeater mode:** Press (less than five seconds) to enable WPS. Press twice to connect to a client. See Section 1.4 on page 12.
AP Mode	
Hold for 5 to 10 seconds	The WRE6505 resets its configuration to factory defaults and reboots. See Section 5.3 on page 28.
Hold for more than 10 seconds	The WRE6505 keeps its configuration and reboots.
Repeater Mode	
Push twice	The WRE6505 begins connecting to a wireless client via WPS. See Section 1.4 on page 12.
Hold for 5 to 10 seconds	The WRE6505 resets its configuration to factory defaults and reboots. See Section 5.3 on page 28.
Hold for more than 10 seconds	The WRE6505 keeps its configuration and reboots.

1.4.1 Wi-Fi Protected Setup

Your WRE6505 supports Wi-Fi Protected Setup (WPS), which is an easy way to set up a secure wireless network. WPS is an industry standard specification, defined by the Wi-Fi Alliance.

WPS allows you to quickly set up a wireless network with strong security, without having to configure security settings manually. Each WPS connection works between two devices. Both devices must support WPS (check each device's documentation to make sure).

Depending on the devices you have, you can either press a button (recommended) on the device itself, or in its configuration utility or enter a PIN (a unique Personal Identification Number that allows one device to authenticate the other) in each of the two devices. When WPS is activated on a device, it has two minutes to find another device that also has WPS activated. Then, the two devices connect and set up a secure network by themselves.

For more information on using WPS, see Section 3.5 on page 19.

2

WRE6505 Modes

2.1 Overview

This chapter introduces the different modes available on your WRE6505.

- **Sys OP mode**. This is the operating mode of your WRE6505, or simply how the WRE6505 is being used in the network.

2.1.1 Device Modes

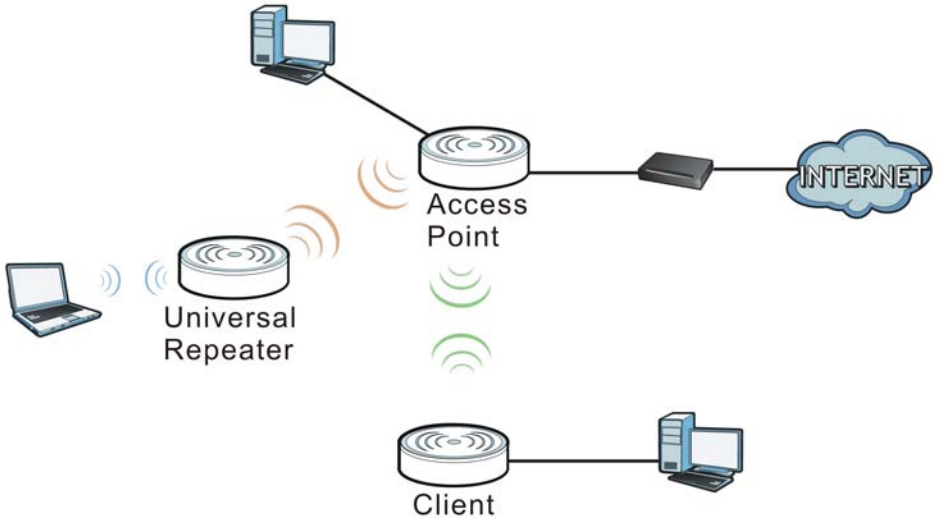
This refers to the operating mode of the WRE6505, which can act as a:

- **Universal Repeater:** In this mode, the WRE6505 can be an access point and a wireless client at the same time. Go to Section 3.4 on page 16 to view the **Status** screen in this mode. Use this mode if there is an existing wireless router or access point in your network and you also want to allow clients to connect to the WRE6505 wirelessly.
- **Access Point:** Use this mode if you want to extend your network by allowing network devices to connect to the WRE6505 wirelessly. Go to Section 4.4 on page 22 to view the **Status** screen in this mode.

  In this mode, you can also set the WRE6505 to work as an AP only, a wireless bridge to establish wireless links with other APs (WDS bridge), or an AP and bridge simultaneously (WDS repeater). See Section 4.2 on page 21 for more information.

The following figure is an illustration of the device configuration modes of the WRE6505.

Figure 3 Device Mode Example



Note: Choose your device mode carefully to avoid having to change it later.

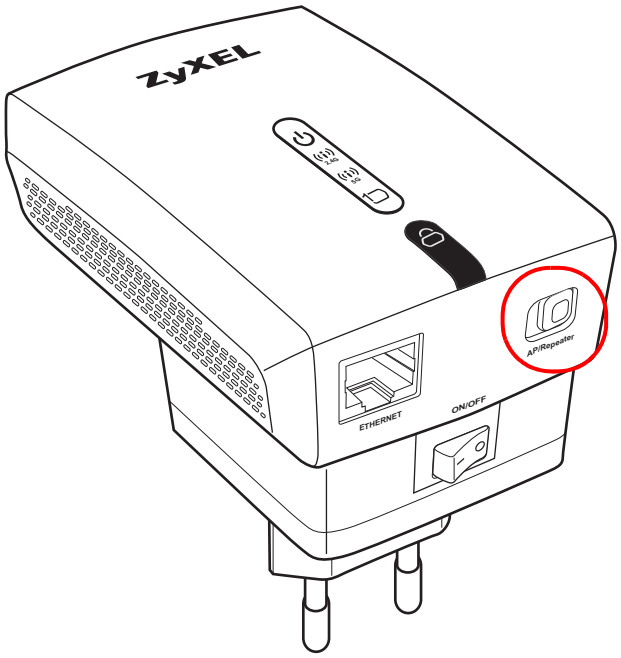
Under Repeater mode, the WRE6505 supports three WPS behaviors: Normal mode, Range boost mode, and Speed boost mode. These behaviors are only available in Repeater mode through the Maintenance screen.

2.1.1.1 Changing Operating Mode

Push the **AP / Repeater** mode switch on the WRE6505's bottom panel to the **AP** position to have the WRE6505 act as an access point. Push the switch to the **Repeater** position to have the WRE6505 work as a universal repeater.

The WRE6505 restarts automatically after you change operating modes.

Figure 4 Bottom Panel



3

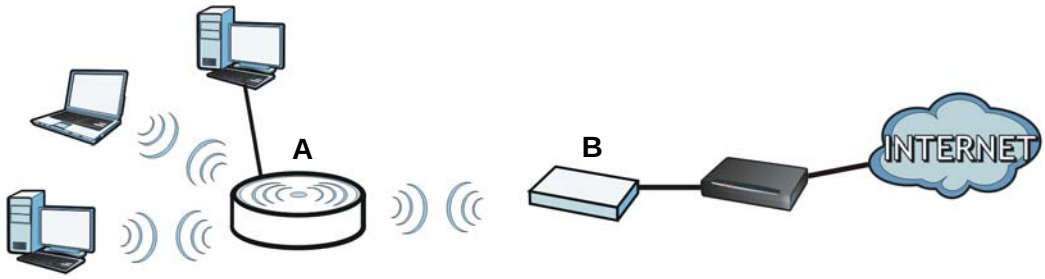
Universal Repeater Mode

3.1 Overview

In universal repeater mode, your WRE6505 can act as an access point and wireless client at the same time. The WRE6505 can connect to an existing network through another access point and also lets wireless clients connect to the network through it. This helps you expand wireless coverage when you have an access point or wireless router already in your network.

In the example below, the WRE6505 (**A**) is configured as a universal repeater. It has three clients that want to connect to the Internet. The WRE6505 wirelessly connects to the available access point (**B**).

Figure 5 Universal Repeater Mode



After the WRE6505 and the access point connect, the WRE6505 acquires its IP address from the access point. The clients of the WRE6505 can now surf the Internet.

3.2 What You Can Do

- Use the **Status** screen (Section 7.1 on page 37) to view read-only information about your WRE6505.
- Use the **LAN** screen (Chapter 10 on page 63) to set the IP address for your WRE6505.
- Use the **Wireless LAN > WPS** screen (Section 3.5 on page 19) to configure WPS on the WRE6505 to associate to another access point.
- Use the **Network > Wireless LAN (2.4G/5G) > Security** screen (Section 9.5 on page 56) to configure the wireless security between the WRE6505 and another access point.
- Use other **Wireless LAN** screens (Section 9.4 on page 55) to configure the wireless settings and wireless security between the wireless clients and the WRE6505.

3.3 What You Need to Know

With the exception of the **System Mode** other configuration screens in Universal Repeater mode are similar to the ones in Access Point Mode. See Chapter 2 on page 13 of this User's Guide.

3.3.1 Setting your WRE6505 to Universal Repeater Mode

1. To use your WRE6505 as a universal repeater, see Section 2.1.1.1 on page 14.
2. Connect your computer to the LAN port of the WRE6505.
3. The default IP address of the WRE6505 is "192.168.1.2". In this case, your computer must have an IP address in the range between "192.168.1.3" and "192.168.1.254".
4. After you've set your computer's IP address, open a web browser such as Internet Explorer and type "http://192.168.1.2" or http://zyxelsetup as the web address in your web browser.
5. Enter "1234" (default) as the password and click **Login**.
6. Type a new password and retype it to confirm, then click **Apply**. Otherwise, click **Ignore**.

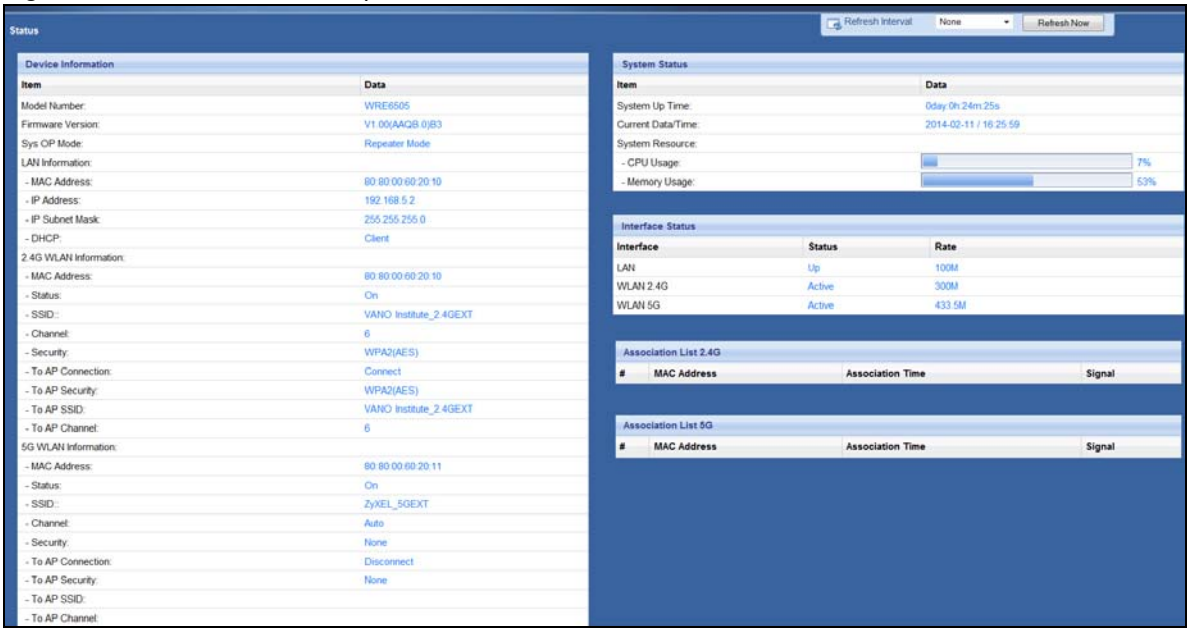
Note: You have to log in to the Web Configurator again when you change modes. As soon as you do, your WRE6505 is already in Universal Repeater mode.

Note: The universal repeater mode IP address is always the same as the access point mode IP address. If you changed the IP address of your WRE6505 while in access point mode, use this IP address in universal repeater mode.

3.4 Universal Repeater Mode Status Screen

Click to open the **Status** screen.

Figure 6 Status: Universal Repeater Mode



The following table describes the labels shown in the **Status** screen.

Table 3 Status Screen: Universal Repeater Mode

LABEL	DESCRIPTION
Logout	Click this at any time to exit the Web Configurator.
Device Information	
Model Number	This is the WRE6505's model name.
Firmware Version	This is the firmware version and the date created.
Sys OP Mode	This is the device mode (Section 2.1.1 on page 13) to which the WRE6505 is set - **Universal Repeater Mode**.
LAN Information	
MAC Address	This shows the LAN Ethernet adapter MAC Address of your device.
IP Address	This shows the LAN port's IP address.
IP Subnet Mask	This shows the LAN port's subnet mask.
DHCP	This shows the LAN port's DHCP role - **Client** or **None**.
2.4G WLAN Information	
MAC Address	This shows the wireless adapter MAC Address of your WRE6505.
Status	This shows the current status of the Wireless LAN - **ON**.
SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
Channel	This shows the channel number which you select manually or the WRE6505 automatically scans and selects.
Security	This shows the level of wireless security the WRE6505 is using.
To AP Connection	This displays whether the WRE6505 is connected to an AP or not.
To AP Security	This displays the type of established security protocol with the AP.
To AP SSID	This displays the SSID of the connected AP.
To AP Channel	This displays the current channel in use with the connected AP.

Table 3 Status Screen: Universal Repeater Mode

LABEL	DESCRIPTION
5G WLAN Information	
MAC Address	This shows the wireless adapter MAC Address of your WRE6505.
Status	This shows the current status of the Wireless LAN - **ON**.
SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
Channel	This shows the channel number which you select manually or the WRE6505 automatically scans and selects.
Security	This shows the level of wireless security the WRE6505 is using.
To AP Connection	This displays whether the WRE6505 is connected to an AP or not.
To AP Security	This displays the type of established security protocol with the WRE6505.
To AP SSID	This displays the SSID of the connected AP.
To AP Channel	This displays the current channel in use with the connected AP.
System Status	
Item	This column shows the type of data the WRE6505 is recording.
Data	This column shows the actual data recorded by the WRE6505.
System Up Time	This is the total time the WRE6505 has been on.
Current Date/Time	This field displays your WRE6505's present date and time.
System Resource	
CPU Usage	This displays what percentage of the WRE6505's processing ability is currently used. When this percentage is close to 100%, the WRE6505 is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications (for example, using bandwidth management.
Memory Usage	This shows what percentage of the heap memory the WRE6505 is using.
Interface Status	
Interface	This displays the WRE6505 port types. The port types are: **LAN** and **WLAN**.
Status	For the LAN port, this field displays **Down** (line is down) or **Up** (line is up or connected). For the WLAN, it displays **Up** when the WLAN is enabled or **Down** when the WLAN is disabled.
Rate	For the LAN ports, this displays the port speed and duplex setting or **NA** when the line is disconnected. For the WLAN, it displays the maximum transmission rate when the WLAN is enabled and **NA** when the WLAN is disabled or **Auto**.
Association List 2.4G	
#	This is the index number of an associated wireless station.
MAC Address	This field displays the MAC address of an associated wireless station.
Association Time	This field displays the time a wireless station first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.
Association List 5G	
#	This is the index number of an associated wireless station.
MAC Address	This field displays the MAC address of an associated wireless station.
Association Time	This field displays the time a wireless station first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.

3.5 WPS Screen

Use this screen to connect to another AP. Go to **Configuration > Wireless LAN (2.4G/5G) > WPS** to open the following screen.

Note: Wireless clients cannot use WPS to set up a wireless network with the WRE6505 in universal repeater mode.

Figure 7 Universal Repeater: Configuration > Wireless LAN (2.4G/5G) > WPS

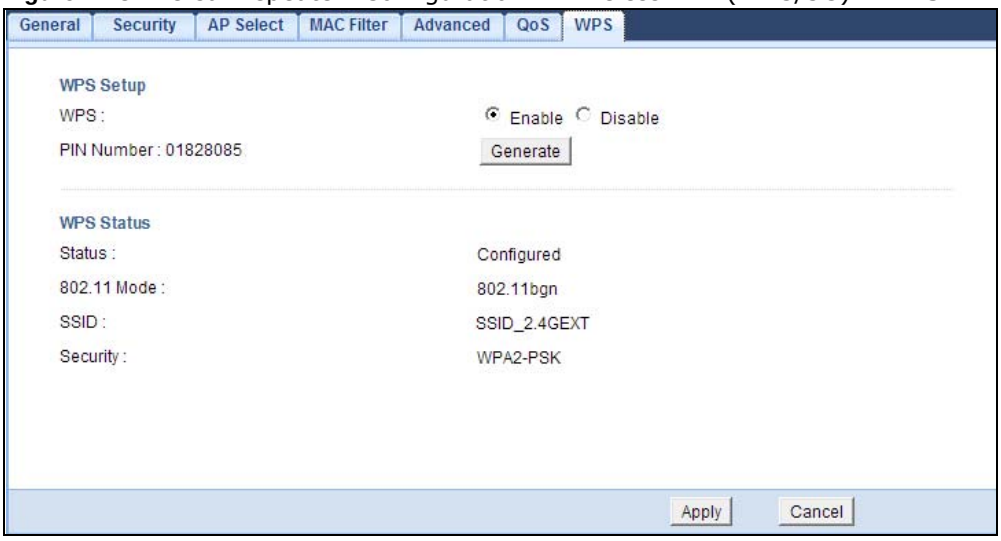
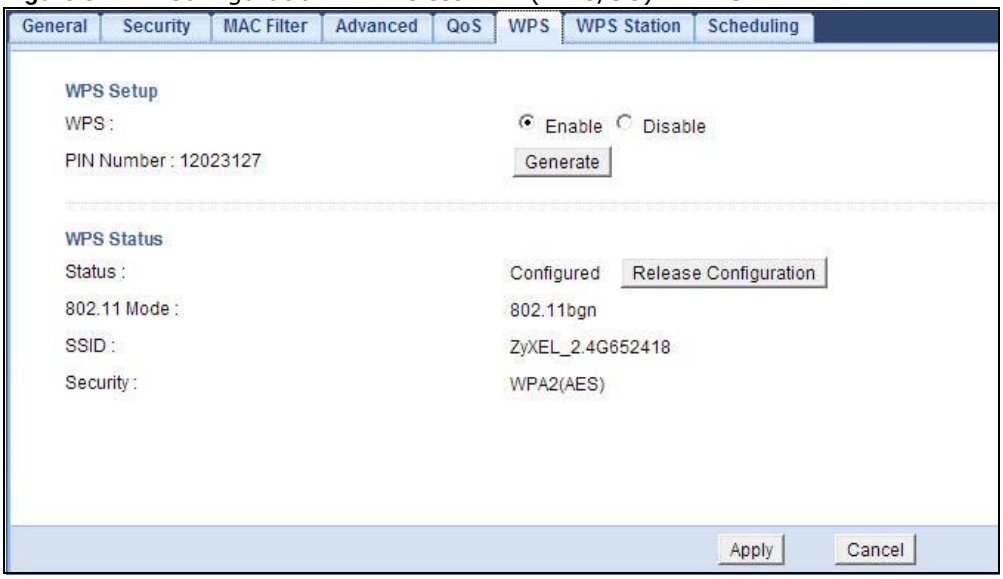


Figure 8 AP: Configuration > Wireless LAN (2.4G/5G) > WPS



The following table describes the labels in this screen.

Table 4 Universal Repeater: Configuration> Wireless LAN (2.4G / 5G) > WPS

LABEL	DESCRIPTION
WPS Setup	
WPS	Select this to enable the WPS feature.

Table 4 Universal Repeater: Configuration> Wireless LAN (2.4G / 5G) > WPS (continued)

LABEL	DESCRIPTION
PIN Number	This displays a PIN number last time system generated. Click **Generate** to generate a new PIN number.
Generate	Click **Generate** to have the WRE6505 generate a PIN number.
WPS Status	
Status	This displays **Configured** when the WRE6505 has connected to a wireless network using WPS or when **Enable WPS** is selected and wireless or wireless security settings have been changed. The current wireless and wireless security settings also appear in the screen. This displays **Unconfigured** if WPS is disabled and there are no wireless or wireless security changes on the WRE6505 or you click **Release Configuration** to remove the configured wireless and wireless security settings.
Release Configuration (AP Mode Only)	This button is only available in AP mode when the WPS status displays **Configured**. Click this button to remove all configured wireless and wireless security settings for WPS connections on the WRE6505.
802.11 Mode	Displays the wireless protocol configured for the WPS connection.
SSID	Displays the network name for the WPS connection.
Security	Displays the security protocol selected for the WPS connection.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to return to the previous menu without saving.

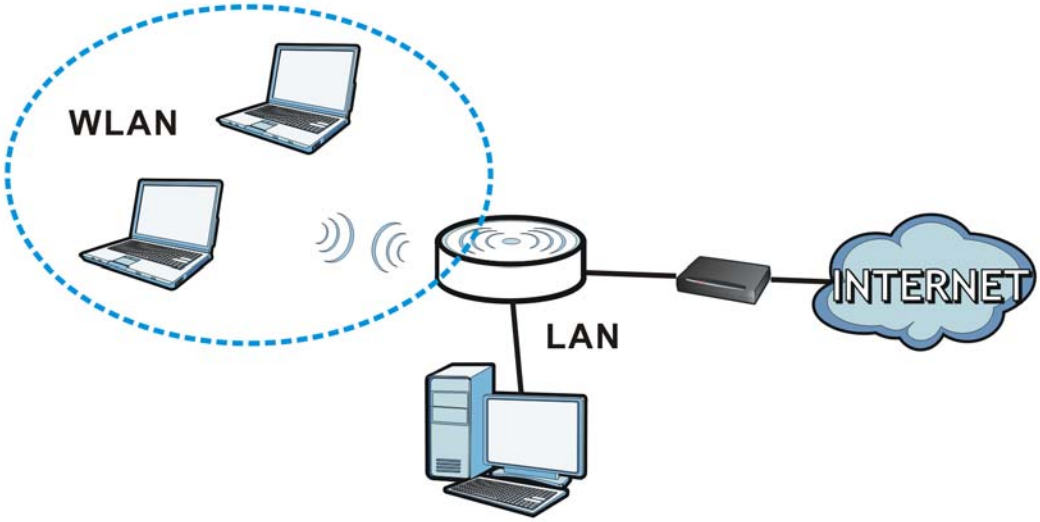
4

Access Point Mode

4.1 Overview

In Access Point (AP) mode your WRE6505 bridges a wired network (LAN) and wireless LAN (WLAN) in the same subnet. See the figure below for an example.

Figure 9 Wireless Internet Access in Access Point Mode



Note: See Chapter 8 on page 43 for an example of setting up a wireless network in Access Point mode.

4.2 What You Can Do

- Use the **Status** screen (Section 4.4 on page 22) to view read-only information about your WRE6505.
- Use the **LAN** screen (Chapter 10 on page 63) to set the IP address for your WRE6505 acting as an access point.
- Use the **Wireless LAN > WPS** screen (Section 9.9 on page 59) to configure WPS on the WRE6505 to associate to another access point.

4.3 What You Need to Know

With the exception of the **System Mode** other configuration screens in Access Point mode are similar to the ones in Universal Repeater mode. See Chapter 2 on page 13 of this User's Guide.

4.3.1 Setting your WRE6505 to AP Mode

By default, AP mode in the WRE6505 is not configured with a static IP address. To setup your WRE6505 in AP mode for the first time, the directly-connected router must have the DHCP server function enabled.

1. To use your WRE6505 as an access point, set the mode switch to AP mode. See Section 2.1.1.1 on page 14.
2. Connect one end of an Ethernet cable to the Ethernet port on the WRE6505 and the other end to your router.
3. Connect your computer to your network, make sure both the WRE6505 and computer are under the same subnet.
4. Open a web browser window and type "http://zyxelsetup" in the web address.
   The login screen displays.
5. Enter "1234" (default) as the password and click **Login**.
6. Type a new password and retype it to confirm, then click **Apply**. Otherwise, click **Ignore**.

   The WRE6505 Web Configurator displays, which allows you to configure the AP mode.

4.3.2 Configuring your WLAN, LAN and Maintenance Settings

- See Chapter 9 on page 53 and Chapter 10 on page 63 for information on the configuring your wireless network and LAN settings.
- See Chapter 11 on page 65 for information on configuring your Maintenance settings.

4.4 AP Mode Status Screen

Click to open the **Status** screen.

Figure 10 Status Screen: Access Point Mode

The following table describes the icons shown in the **Status** screen.

Table 5 Status Screen Icon Key: Access Point Mode

ICON	DESCRIPTION
	Click this icon to view copyright and a link for related product information.
	Click this icon to open the wizard. See Chapter 6 on page 29.
	Select a number of seconds or **None** from the drop-down list box to refresh all screen statistics automatically at the end of every time interval or to not refresh the screen statistics.
	Click this button to refresh the status screen statistics.
	Click this icon to see the **Status** page. The information in this screen depends on the device mode you select.
	Click this icon to see the **Configuration** navigation menu.
	Click this icon to see the **Maintenance** navigation menu.

The following table describes the labels shown in the **Status** screen.

Table 6 Status Screen: Access Point Mode

LABEL	DESCRIPTION
Logout	Click this at any time to exit the Web Configurator.
Device Information	
Model Number	This is the WRE6505's model name.
Firmware Version	This is the firmware version and the date created.
Sys OP Mode	This is the device mode (Section 2.1.1 on page 13) to which the WRE6505 is set - **Access Point Mode**.
LAN Information	
MAC Address	This shows the LAN Ethernet adapter MAC Address of your device.
IP Address	This shows the LAN port's IP address.

Table 6 Status Screen: Access Point Mode (continued)

LABEL	DESCRIPTION
IP Subnet Mask	This shows the LAN port's subnet mask.
DHCP	This shows the LAN port's DHCP role - **Client** or **None**.
2.4G WLAN Information	
MAC Address	This shows the wireless adapter MAC Address of your device.
Status	This shows the current status of the Wireless LAN - **ON**.
SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
Channel	This shows the channel number which you select manually or the WRE6505 automatically scans and selects.
Security	This shows the level of wireless security the WRE6505 is using.
5G WLAN Information	
MAC Address	This shows the wireless adapter MAC Address of your device.
Status	This shows the current status of the Wireless LAN - **ON**.
SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
Channel	This shows the channel number which you select manually or the WRE6505 automatically scans and selects.
Security	This shows the level of wireless security the WRE6505 is using.
System Status	
Item	This column shows the type of data the WRE6505 is recording.
Data	This column shows the actual data recorded by the WRE6505.
System Up Time	This is the total time the WRE6505 has been on.
Current Date/Time	This field displays your WRE6505's present date and time.
System Resource	
CPU Usage	This displays what percentage of the WRE6505's processing ability is currently used. When this percentage is close to 100%, the WRE6505 is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications (for example, using bandwidth management.
Memory Usage	This shows what percentage of the heap memory the WRE6505 is using.
Interface Status	
Interface	This displays the WRE6505 port types. The port types are: **LAN** and **WLAN**.
Status	For the LAN port, this field displays **Down** (line is down) or **Up** (line is up or connected). For the WLAN, it displays **Up** when the WLAN is enabled or **Down** when the WLAN is disabled.
Rate	For the LAN ports, this displays the port speed and duplex setting or **NA** when the line is disconnected. For the WLAN, it displays the maximum transmission rate when the WLAN is enabled and **NA** when the WLAN is disabled or **Auto**.
Association List 2.4G	
#	This is the index number of an associated wireless client.
MAC Address	This field displays the MAC address of an associated wireless client.
Association Time	This field displays the time a wireless station first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.

Table 6 Status Screen: Access Point Mode (continued)

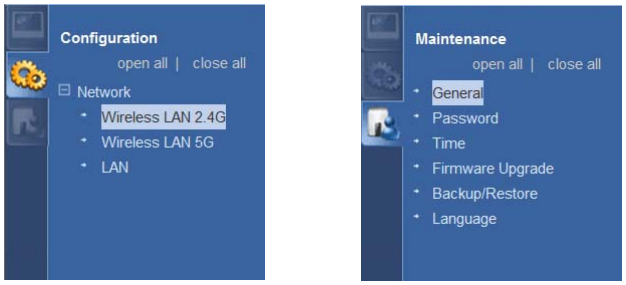
LABEL	DESCRIPTION
Association List 5G	
#	This is the index number of an associated wireless client.
MAC Address	This field displays the MAC address of an associated wireless client.
Association Time	This field displays the time a wireless station first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.

4.4.1 Navigation Panel

Use the menu in the navigation panel to configure WRE6505 features in Access Point mode.

The following screen and table show the features you can configure in Access Point mode.

Figure 11 Menu: Access Point Mode



The following table describes the sub-menus.

Table 7 Navigation Panel: Access Point Mode

LINK	TAB	FUNCTION
Status		This screen shows the WRE6505's general device, system and interface status information. Use this screen to access the wizard, and summary statistics tables.
CONFIGURATION		
Network		
Wireless LAN 2.4G	General	Use this screen to configure general wireless LAN settings.
	Security	Use this screen to configure wireless security settings.
	MAC Filter	Use the MAC filter screen to configure the WRE6505 to block access to devices or block the devices from accessing the WRE6505.
	Advanced	This screen allows you to configure advanced wireless settings.
	WPS	Use this screen to configure WPS.
	WPS Station	Use this screen to add a wireless station using WPS. Only available in AP mode.
	Scheduling	Use this screen to schedule the times the Wireless LAN is enabled.

Table 7 Navigation Panel: Access Point Mode

LINK	TAB	FUNCTION
Wireless LAN 5G	General	Use this screen to configure general wireless LAN settings.
	Security	Use this screen to configure wireless security settings.
	MAC Filter	Use the MAC filter screen to configure the WRE6505 to block access to devices or block the devices from accessing the WRE6505.
	Advanced	This screen allows you to configure advanced wireless settings.
	WPS	Use this screen to configure WPS.
	WPS Station	Use this screen to add a wireless station using WPS. Only available in AP mode.
	Scheduling	Use this screen to schedule the times the Wireless LAN is enabled.
LAN	IP	Use this screen to configure LAN IP address and subnet mask.
MAINTENANCE		
General		Use this screen to view and change administrative settings such as system and domain names.
Password	Password Setup	Use this screen to change the password of your WRE6505.
Time	Time Setting	Use this screen to change your WRE6505’s time and date.
Firmware Upgrade		Use this screen to upload firmware to your WRE6505.
Backup/ Restore		Use this screen to backup and restore the configuration or reset your WRE6505 to the factory defaults.
Language		Use this screen to select the language to display in the interface.

5

The Web Configurator

5.1 Overview

This chapter describes how to access the WRE6505 Web Configurator and provides an overview of its screens.

The Web Configurator is an HTML-based management interface that allows easy setup and management of the WRE6505 via Internet browser. Use Internet Explorer 6.0 and later versions, Mozilla Firefox 3 and later versions, or Safari 2.0 and later versions. The recommended screen resolution is 1024 by 768 pixels.

In order to use the Web Configurator you need to allow:

- Web browser pop-up windows from your device. Web pop-up blocking is enabled by default in Windows XP SP (Service Pack) 2.
- JavaScript (enabled by default).
- Java permissions (enabled by default).

Refer to Chapter 12 Troubleshooting to see how to make sure these functions are allowed in Internet Explorer.

5.2 Accessing the Web Configurator

1 Make sure your WRE6505 hardware is properly connected and prepare your computer or computer network to connect to the WRE6505 (refer to the Quick Start Guide).

Note: If your computer is assigned a static IP address, it must be on the same subnet as the WRE6505.

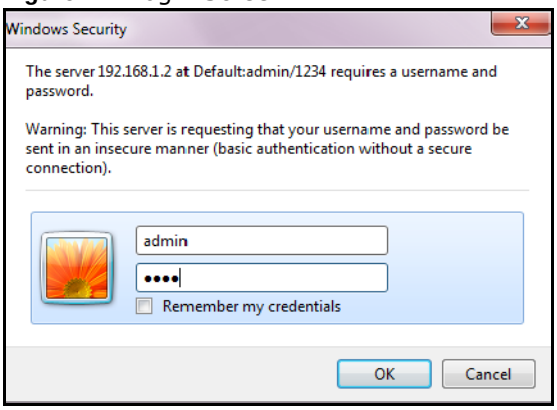
The WRE6505's DHCP server is enabled before the WRE6505 is associated with your AP or wireless router and disabled after association. If this is the first time you are accessing your WRE6505, you can configure your computer as a DHCP client (computer factory default) so it will get an IP address automatically from the WRE6505. After the WRE6505 is associated with your wireless router, your computer will get its IP address from the wireless router.

2 Launch your web browser.

3 If this is the first time you are accessing your WRE6505, type "http://192.168.1.2" as the website address in your web browser. This is the default LAN IP address. Alternatively, after the WRE6505 has successfully associated with your wireless router, type "http://zyxelsetup" instead of the default IP address.

4 Type **admin** (default) as the user name and **1234** (default) as the password and click **OK**.

Figure 12 Login Screen



5.3 Resetting the WRE6505

If you forget your password or IP address, or you cannot access the Web Configurator, press the **WPS** button for more than 5 seconds (no longer than 10 seconds) to reload the factory-default configuration file. This means that you will lose all configurations that you had previously saved, the username will be reset to **admin** and password will be reset to **1234**. The IP address will be reset to "192.168.1.2".

1 Make sure the power LED is on.

2 Press and hold the **WPS** button. After 5 (no longer than 10) seconds, the power LED begins flashing.

3 Release the **WPS** button. The WRE6505 reloads factory defaults and begins to reboot.

6

Connection Wizard

6.1 Overview

This chapter provides information on the wizard setup screens in the Web Configurator.

The Web Configurator's wizard setup helps you configure your device.

After you access the WRE6505 Web Configurator, click to start wizard setup.

6.2 Using the Web Configurator Wizard

The Web Configurator for the WRE6505 is available in Repeater and AP mode. The following section reflects the web configuration process while in Repeater Mode.

6.2.1 Extending the Network

The first step in setting up your network is to select the type of network to extend.

Click the 2.4 Ghz or 5 Ghz Wireless button to continue.

Figure 13 Wizard Step 1: Selecting Network

The wizard scans for available networks and displays the **AP Select** menu.

6.2.2 Configuring the WRE6505 for Connection to an AP

In this step of the configuration wizard, you must configure the WRE6505 with the security parameters of the AP you want to connect to. These parameters can be configured by selecting those automatically detected by the WRE6505, or by configuring them manually. Manual configuration is useful when the AP is hidden.

6.2.2.1 Selecting Automatically Detected AP Parameters

1 Select an available AP, see the following screen.

Figure 14 Wizard Step 2: Selecting an AP

The following table describes the labels in this screen.

Table 8 Network > Wireless LAN > AP Select

LABEL	DESCRIPTION
Select	Use the radio button to select the wireless device to which you want to connect.
SSID	This displays the Service Set IDentity of the wireless device. The SSID is a unique name that identifies a wireless network. All devices in a wireless network must use the same SSID.
MAC	This displays the MAC address of the wireless device.
Channel	This displays the channel number used by this wireless device.
Mode	This displays which IEEE 802.11b/g/n wireless networking standards the wireless device supports.
Security Mode	This displays the type of security configured on the wireless device. When **no** is shown, no security is configured and you can connect to it without a password.
Strength	This displays the strength of the wireless signal. The signal strength mainly depends on the antenna output power and the distance between your WRE6505 and this device.
Setup repeater manually	Select this to setup the AP manually. You will need to know the wireless router's SSID. This is the only option that allows you to manually set the channel.
SSID	If **Setup repeater manually** is selected, use this field to type the SSID of the AP. This is useful when the AP's SSID is hidden.
Refresh	Click this to search for available wireless devices within transmission range and update this table.
Back	Click this to go back to the previous step in the wizard.
Next	Click this to start the next step in the AP setup process.

Table 8 Network > Wireless LAN > AP Select (continued)

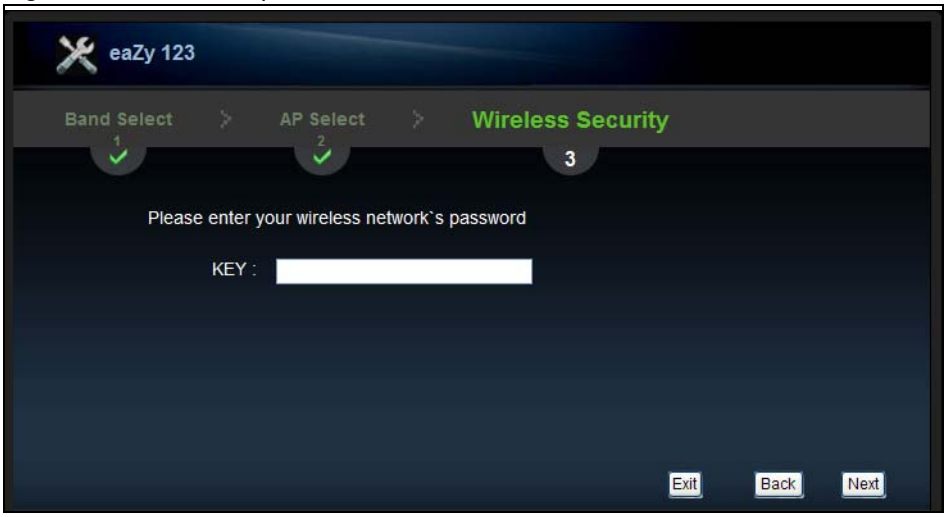
LABEL	DESCRIPTION
Exit	Click this to exit the wizard.
Previous	Click this to see the previous page of APs.
Next	Click this to see the next page of APs.

Note: The wireless stations and WRE6505 must use the same SSID, channel ID, WPA-PSK (if WPA-PSK is enabled) or WPA2-PSK (if WPA2-PSK is enabled) for wireless communication.

2 Click **Next** to continue.

3 Type the selected network's wireless password (key). The number of characters accepted by the KEY field is shown in the following table.

Figure 15 Wizard Step 3: Enter Wireless Network Password



The following table describes the labels in this screen.

Table 9 Maximum Key Lengths

ENCRYPTION	KEY FORMAT	KEY LENGTH
64-bit WEP	ASCII	5 characters
	Hex	10 characters
128-bit WEP	ASCII	13 characters
	Hex	26 characters
WPA pre-shared key	Passphrase	8-63 characters
	Hex	64 characters

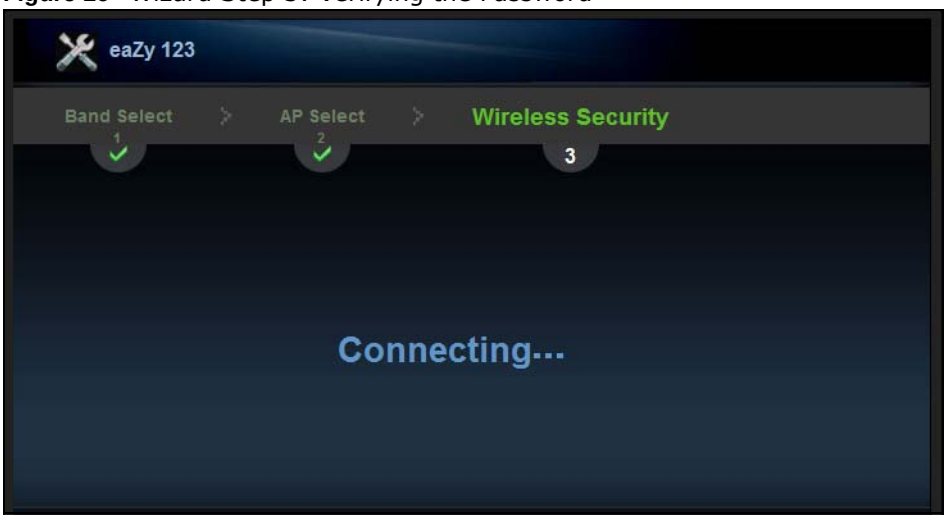
4 Click **Next** to continue and verify the password.

6.2.2.2 Completing the Connection Wizard

Complete the installation process by reviewing the wireless network settings and applying the configuration.

After entering the wireless network's password, the verification screen displays as follows.

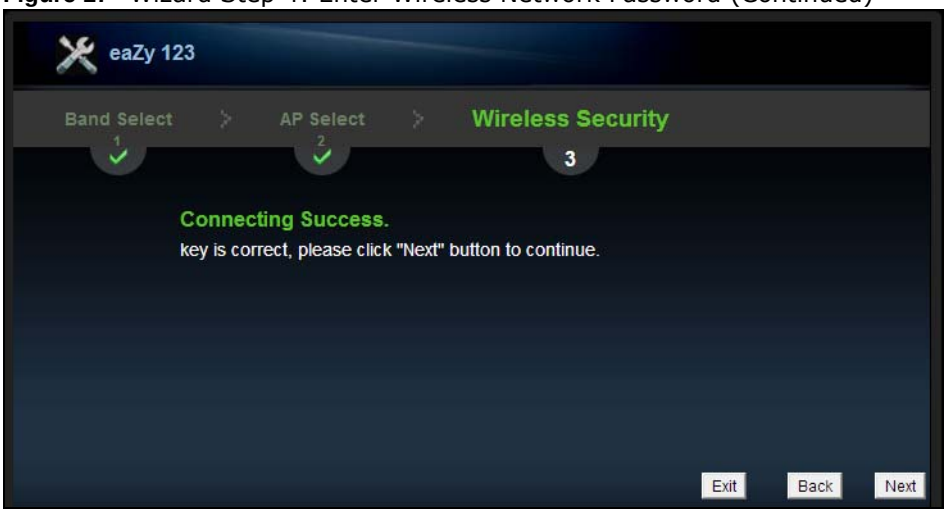
Figure 16 Wizard Step 3: Verifying the Password



The following screen appears if the key verifies successfully.

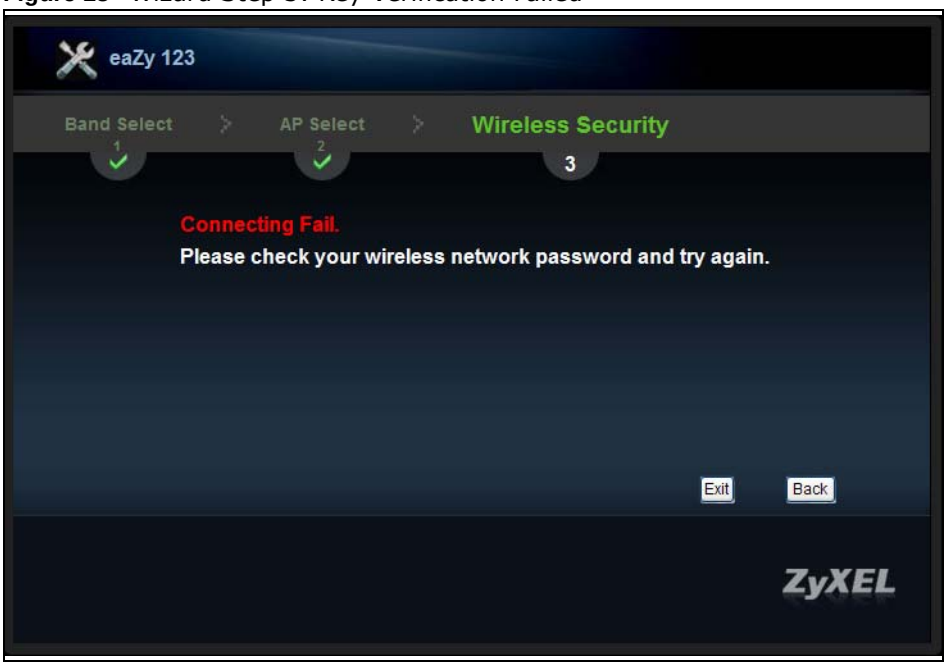
1 Click **Next** to continue. The Wireless Security overview page displays.

Figure 17 Wizard Step 4: Enter Wireless Network Password (Continued)



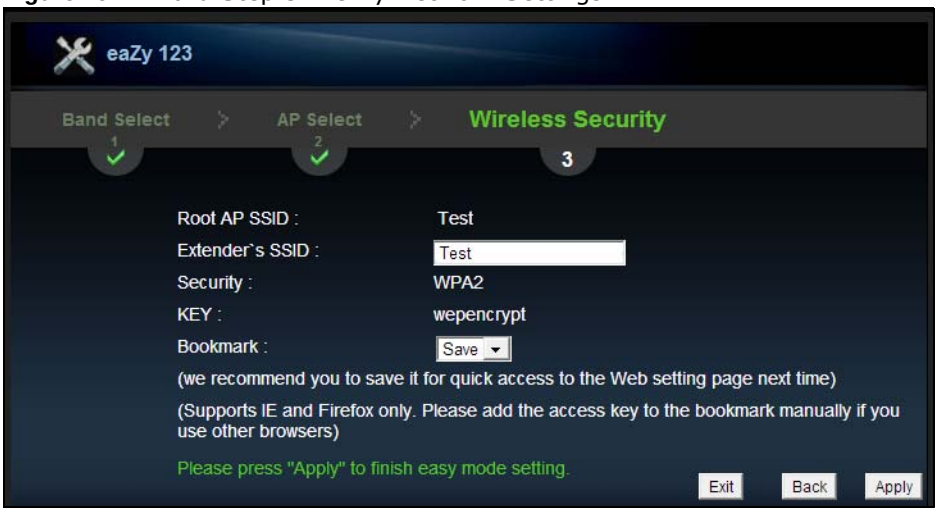
If the network password is invalid a pop-up and displays a connection failure. Click **OK** to return to the network password page.

Figure 18 Wizard Step 3: Key Verification Failed



2 Click **Apply** to complete the easy mode setting process, or click **Back** to return to the initial setup screen. You can also click **Exit** to return to the main menu and exit the setup process.

Figure 19 Wizard Step 5: Verify Network Settings



3 Verify the selected wireless network settings. Click the **Bookmark** drop-down menu and select **Save** to save the settings to your web browser's cache. Select **No** to continue without saving. The Bookmark function creates a bookmark in your browser and allows for quick access to web settings the next time you log in.

Note: The Bookmark function is only supported by the following browsers: Microsoft Internet Explorer and Mozilla Firefox.

A secondary 5 GHz setup screen displays. Click **Yes** to setup a 5 GHz network. Click **No** to restart the device.

The eaZy 123 setup wizard is complete.

6.2.2.3 Manually Configuring AP Parameters

If the AP you want to connect to is not listed, then follow these steps to configure the security settings of the AP manually.

1 Select **Setup repeater manually**.

2 Type the SSID of the wireless router into the **SSID** field.

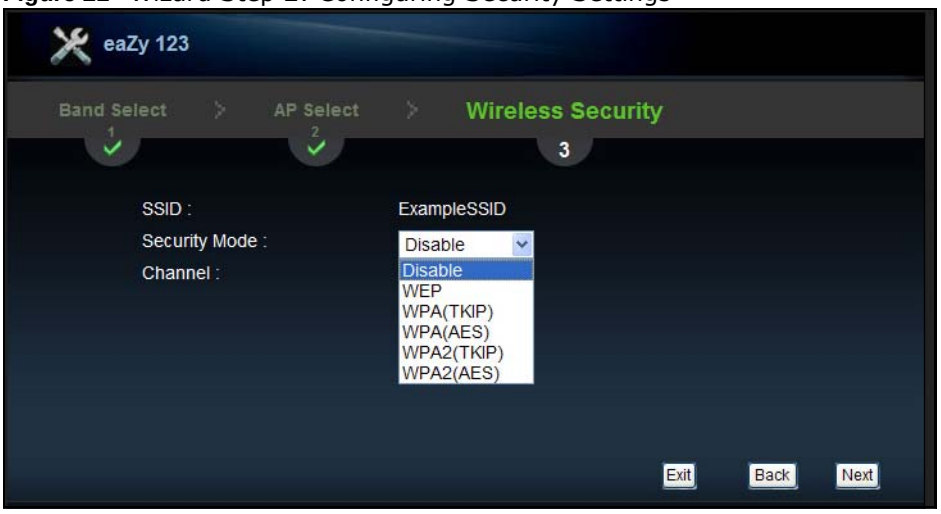
3 Click **Next** to continue.

Figure 20 Wizard Step 1: Entering the SSID

4 Select the security mode used by the wireless router from the drop-down menu.

5 Configure the security settings. The number of characters accepted by the KEY field is shown in the following table.

Figure 21 Wizard Step 2: Configuring Security Settings



The following table describes the labels in this screen.

Table 10 Maximum Key Lengths

ENCRYPTION	KEY FORMAT	KEY LENGTH
64-bit WEP	ASCII	5 characters
	Hex	10 characters
128-bit WEP	ASCII	13 characters
	Hex	26 characters
WPA pre-shared key	Passphrase	8-63 characters
	Hex	64 characters

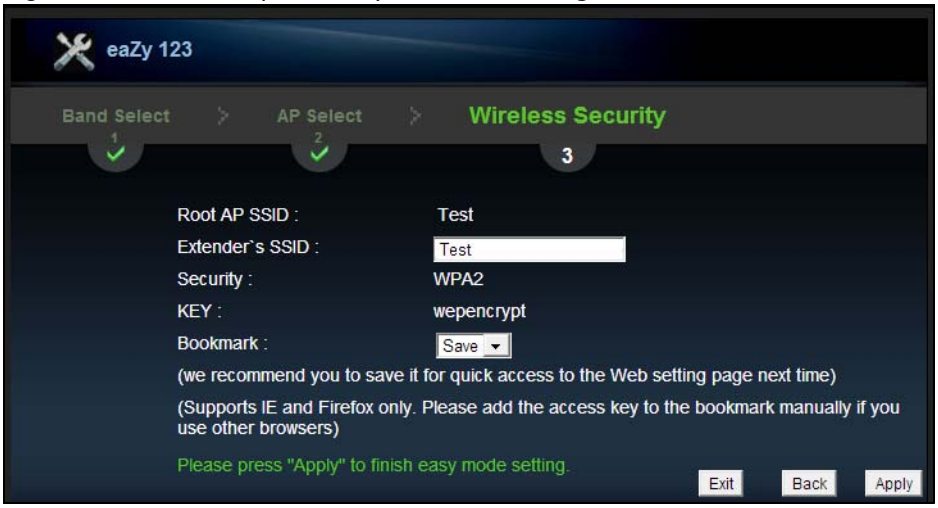
6 Select the channel from the drop-down menu.

Figure 22 Wizard Step 2: Configuring Security Settings

7 Click **Next** to continue.

8 Click **Apply** to complete the easy mode setting process, or click **Back** to return to the initial setup screen. You can also click **Exit** to return to the main menu and exit the setup process.

Figure 23 Wizard Step 5: Verify Network Settings



9 Verify the selected wireless network settings. Click the **Bookmark** drop-down menu and select **Save** to save the settings to your web browser's cache. Select **No** to continue without saving. The Bookmark function creates a bookmark in your browser and allows for quick access to web settings the next time you log in.

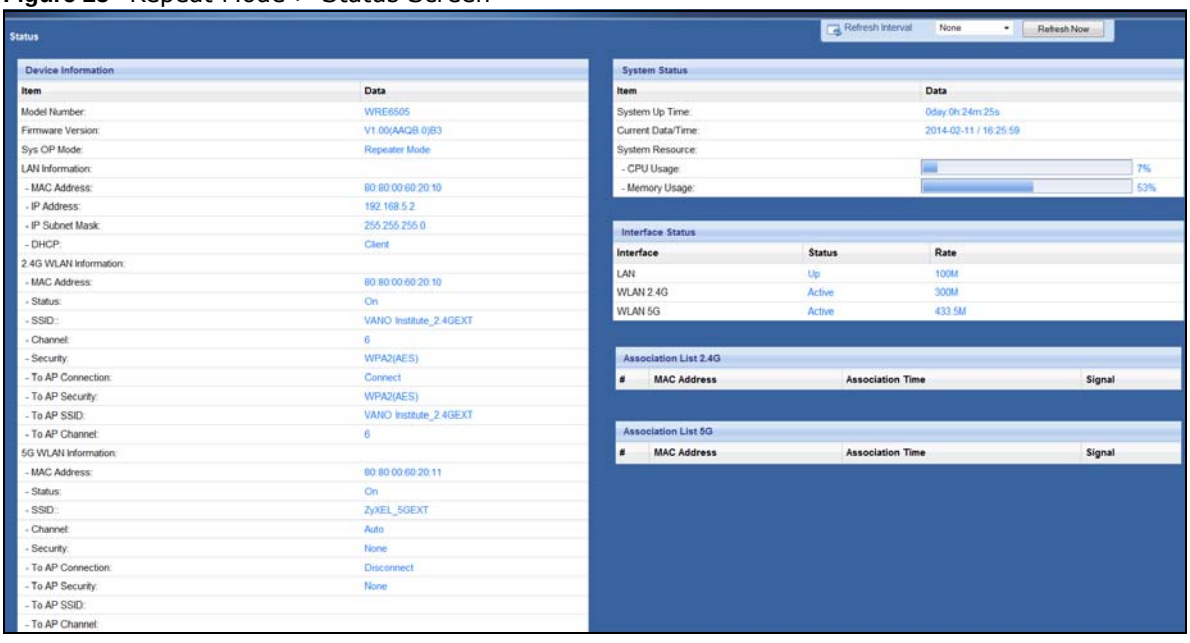
Note: The Bookmark function is only supported by the following browsers: Microsoft Internet Explorer and Mozilla Firefox (prior to version 23).

7.1 WRE6505 Status

The screen below shows the status screen.

Figure 24 AP Mode > Status Screen

Figure 25 Repeat Mode > Status Screen



The following table describes the icons shown in the **Status** screen.

Table 11 Status Screen Icon Key

ICON	DESCRIPTION
	Click this icon to open the setup wizard.
	Click this icon to view copyright and a link for related product information.
	Select a number of seconds or **None** from the drop-down list box to refresh all screen statistics automatically at the end of every time interval or to not refresh the screen statistics.
	Click this button to refresh the status screen statistics.

The following table describes the labels shown in the **Status** screen.

Table 12 Web Configurator Status Screen

LABEL	DESCRIPTION
Device Information	
Model Number	This is the Model Number.
Firmware Version	This is the current firmware version of the WRE6505.
Sys OP Mode	This is the system's current operating mode: AP or Repeater mode
LAN Information	
- MAC Address	This shows the LAN Ethernet adapter MAC Address of your device.
- IP Address	This shows the LAN port's IP address.
- IP Subnet Mask	This shows the LAN port's subnet mask.
- DHCP	This shows the LAN port's DHCP role.
2.4G WLAN Information	
- MAC Address	This shows the wireless adapter MAC Address of your device.
- Status	This shows the current status of the Wireless LAN - **On** or **Off**.
- SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
- Channel	This shows the channel number which the WRE6505 is currently using over the wireless LAN.
- Security	This shows the level of wireless security the WRE6505 is using.
- To AP Connection	This displays whether the WRE6505 is connected to an AP or not.
- To AP Security	This displays the type of established security protocol with the device.
- To AP SSID	This displays the SSID of the connected network router.
- To AP Channel	This displays the current channel in use with the connected network router.
5G WLAN Information	
- MAC Address	This shows the wireless adapter MAC Address of your device.
- Status	This shows the current status of the Wireless LAN - **On** or **Off**.
- SSID	This shows a descriptive name used to identify the WRE6505 in the wireless LAN.
- Channel	This shows the channel number which the WRE6505 is currently using over the wireless LAN.
- Security	This shows the level of wireless security the WRE6505 is using.
- To AP Connection	This displays whether the WRE6505 is connected to an AP or not.

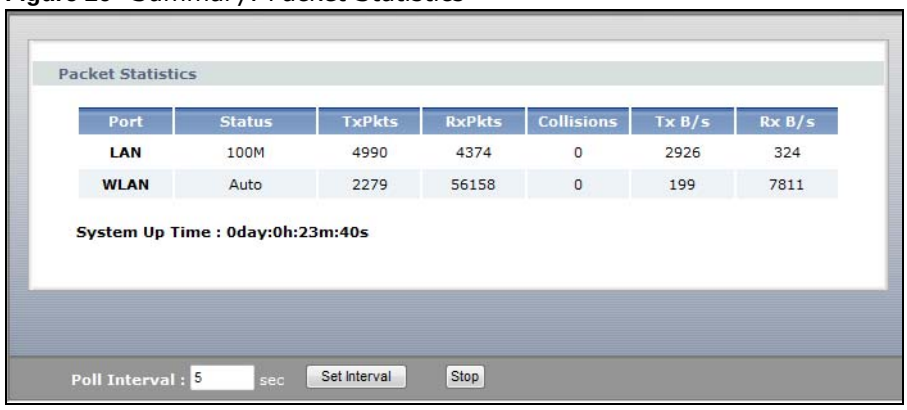
Table 12 Web Configurator Status Screen (continued)

LABEL	DESCRIPTION
- To AP Security	This displays the type of established security protocol with the device.
- To AP SSID	This displays the SSID of the connected network router.
- To AP Channel	This displays the current channel in use with the connected network router.
System Status	
System Up Time	This is the total time the WRE6505 has been on.
Current Date/Time	This field displays your WRE6505's present date and time.
System Resource	
- CPU Usage	This displays what percentage of the WRE6505's processing ability is currently used. When this percentage is close to 100%, the WRE6505 is running at full load, and the throughput is not going to improve anymore. If you want some applications to have more throughput, you should turn off other applications.
- Memory Usage	This shows what percentage of the heap memory the WRE6505 is using.
Interface Status	
Interface	This displays the WRE6505 port types. The port types are: **LAN** and **WLAN**.
Status	For the LAN port, this field displays **Down** (line is down) or **Up** (line is up or connected). For the WLAN, it displays **Up** when the WLAN is enabled or **Down** when the WLAN is disabled.
Rate	For the LAN ports, this displays the port speed and duplex setting or **NA** when the line is disconnected. For the WLAN, it displays the maximum transmission rate when the WLAN is enabled and **NA** when the WLAN is disabled or **Auto**.
Association List 2.4G	
#	This is the index number of an associated wireless client.
MAC Address	This field displays the MAC address of an associated wireless client.
Association Time	This field displays the time a wireless client is first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.
Association List 5G	This table displays all the associated wireless clients and respective signal strength.
#	This is the index number of an associated wireless client.
MAC Address	This field displays the MAC address of an associated wireless client.
Association Time	This field displays the time a wireless client is first associated with the WRE6505's WLAN network.
Signal	This is the signal strength number of the associated client.

7.1.1 Summary: Packet Statistics

Click the **Packet Statistics (Details...)** hyperlink in the **Status** screen. Read-only information here includes port status, packet specific statistics and the "system up time". The **Poll Interval(s)** field is configurable and is used for refreshing the screen.

Figure 26 Summary: Packet Statistics



The following table describes the labels in this screen.

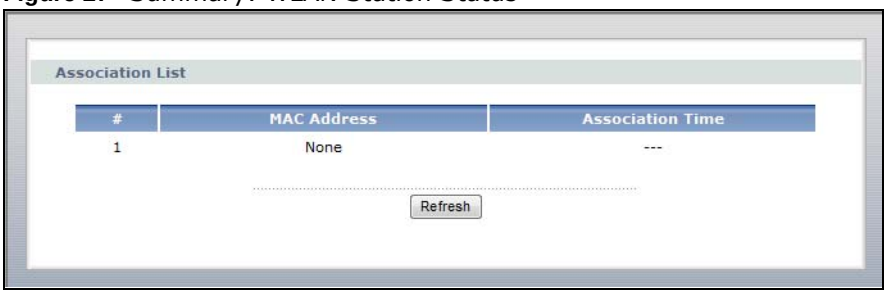
Table 13 Summary: Packet Statistics

LABEL	DESCRIPTION
Port	This is the WRE6505's port type.
Status	For the LAN ports, this displays the port speed and duplex setting or **Down** when the line is disconnected. For the WLAN, it displays **Up** when the WLAN is enabled or **Down** when the WLAN is disabled or **Auto**.
TxPkts	This is the number of transmitted packets on this port.
RxPkts	This is the number of received packets on this port.
Collisions	This is the number of collisions on this port.
Tx B/s	This displays the transmission speed in bytes per second on this port.
Rx B/s	This displays the reception speed in bytes per second on this port.
System Up Time	This is the total time the WRE6505 has been on.
Poll Interval	Enter the time interval for refreshing statistics in this field.
Set Interval	Click this button to apply the new poll interval you entered in the **Poll Interval** field.
Stop	Click **Stop** to stop refreshing statistics.

7.1.2 Summary: WLAN Station Status

Click the **WLAN Station Status (Details...)** hyperlink in the **Status** screen. View the wireless stations that are currently associated to the WRE6505 in the **Association List**. Association means that a wireless client (for example, your network or computer with a wireless network card) has connected successfully to the AP (or wireless router) using the same SSID, channel and security settings.

Figure 27 Summary: WLAN Station Status



The following table describes the labels in this screen.

Table 14 Summary: WLAN Station Status

LABEL	DESCRIPTION
#	This is the index number of an associated wireless station.
MAC Address	This field displays the MAC address of an associated wireless station.
Association Time	This field displays the time a wireless station first associated with the WRE6505's WLAN network.
Refresh	Click **Refresh** to reload the list.

7.2 Navigation Panel

Use the menu in the navigation panel menus to configure WRE6505 features.

Figure 28 Menus

The following table describes the sub-menus.

Table 15 Menus

LINK	TAB	FUNCTION
Status		This screen shows the WRE6505's general device, system and interface status information. Use this screen to access the wizard, and summary statistics tables.
Configuration		

Table 15 Menus (continued)

LINK	TAB	FUNCTION
Wireless LAN 2.4G	General	Use this screen to configure wireless LAN.
	Security	Use this screen to select the available security modes as defined by the paired AP or wireless router.
	AP Select	Use this screen to connect to an access point.
	MAC Filter	Use the MAC Address List screen to allow devices to access the WRE6505.
	Advanced	This screen allows you to configure advanced wireless settings.
	WPS	Use this screen to configure WPS.
	WPS Station	Use this screen to connect the WRE6505 to a wireless station or access point using WPS.
Wireless LAN 5G	General	Use this screen to configure wireless LAN.
	Security	Use this screen to select the available security modes as defined by the paired AP or wireless router.
	AP Select	Use this screen to connect to an access point.
	MAC Filter	Use the MAC Address List screen to allow devices to access the WRE6505.
	Advanced	This screen allows you to configure advanced wireless settings.
	WPS	Use this screen to configure WPS.
	WPS Station	Use this screen to connect the WRE6505 to a wireless station or access point using WPS.
LAN	IP	Use this screen to configure LAN IP address, subnet mask and gateway.
Maintenance		
	General	This screen displays the system and domain names.
	Password	Use this screen to change the password.
	Firmware Upgrade	Use this screen to upload firmware to your WRE6505.
	Backup/ Restore	Use this screen to backup and restore the configuration or reset the factory defaults to your WRE6505.
	Language	Use this screen to select the language setting for the user interface.
	System Mode	Use this screen to select the WPS mode behavior.

8

Tutorials

8.1 Overview

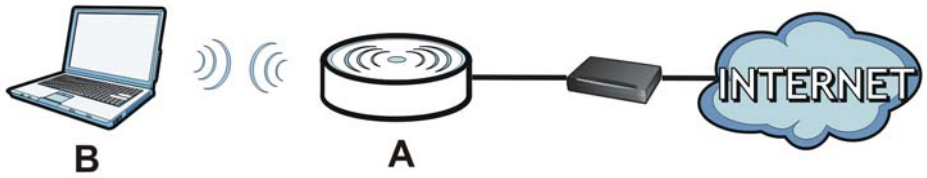
This chapter provides tutorials for your WRE6505 as follows (in access point or universal repeater mode) as follows:

- Connecting to the Internet from an Access Point
- Connecting to a Wireless Network Using WPS
- Connecting the WRE6505 to an AP

8.2 Connecting to the Internet from an Access Point

This section gives you an example of how to set up an access point (AP) and wireless client (a notebook (**B**), in this example) for wireless communication. **B** can access the Internet through the access point (**A**) wirelessly.

Figure 29 Wireless Access Point Connection to the Internet



8.3 Connecting to a Wireless Network Using WPS

This section gives you an example of how to set up wireless network using WPS. The following example uses the WRE6505 as the AP and NWD-211AN as the wireless client which connects to a notebook.

Note: The wireless client must be a WPS-aware device (for example, a WPS USB adapter or PCI card).

The following WPS methods for creating a secure connection are described in the tutorial.

- **Push Button Configuration (PBC)** - create a secure wireless network simply by pressing a button. See Section 8.3.1 on page 44.This is the easier method.

- **PIN Configuration** - create a secure wireless network simply by entering a wireless client's PIN (Personal Identification Number) in the WRE6505's interface. See Section 8.3.2 on page 45. This is the more secure method, since one device can authenticate the other.

8.3.1 Push Button Configuration (PBC)

The push button configuration function found in the interface is only available in AP mode. The WPS button, see Section 1.3 on page 10, can also be used for PBC configurations in either AP or Repeater mode.

1. Make sure that your WRE6505 is turned on and set to work in AP mode and that it is connected to your network.
2. Launch your wireless client's configuration utility.
3. In the wireless client utility, find the WPS settings. Enable WPS and press the WPS button (**Start** or **WPS** button).
4. Log into WRE6505's Web Configurator. Make sure WPS is enabled in the **Network** > **Wireless LAN** > **WPS** screen.
5. Navigate to **Network** > **Wireless LAN** > **WPS Station** and press the **Push Button**.

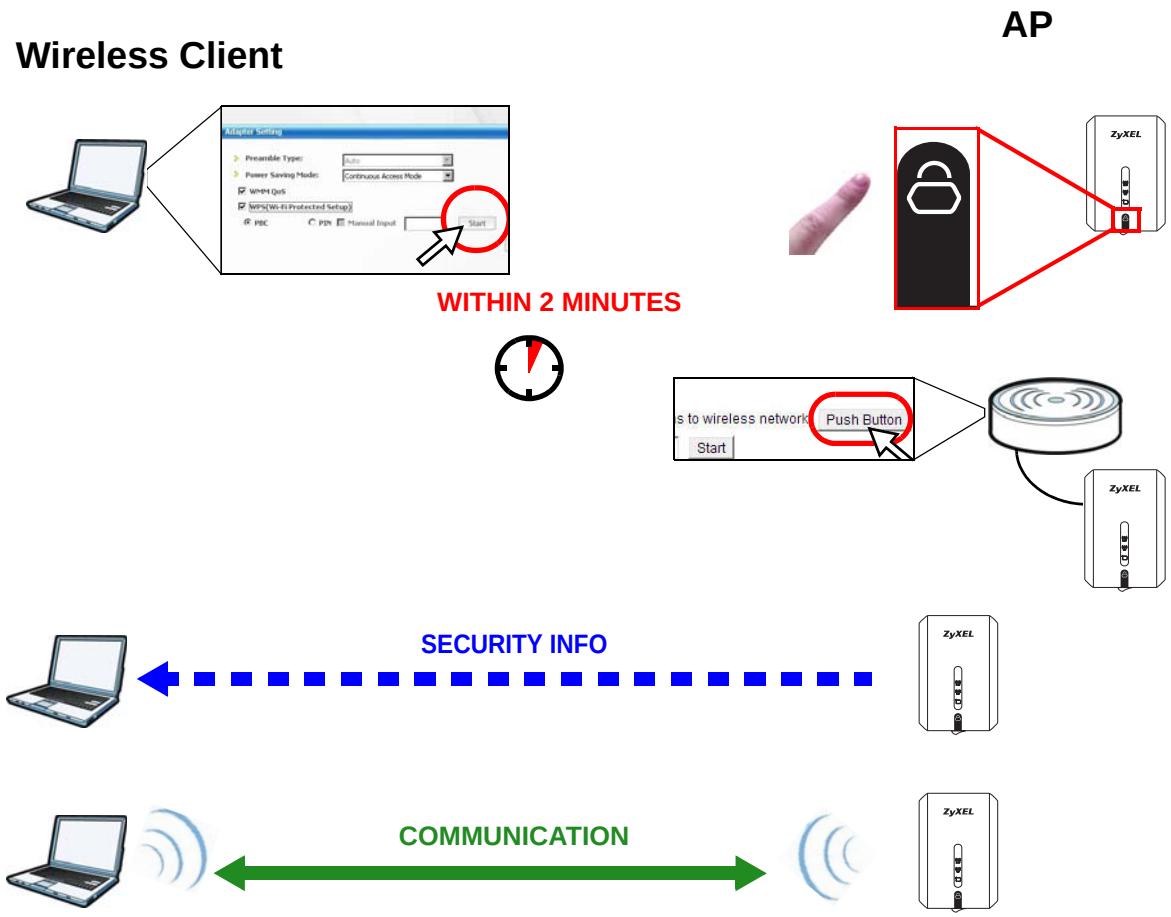
Note: Your WRE6505 has a WPS button located on its panel, as well as a WPS button in its configuration utility (AP mode only). Both buttons have exactly the same function; you can use one or the other.

Note: It doesn't matter which button is pressed first. You must press the second button within two minutes of pressing the first one.

The WRE6505 sends the proper configuration settings to the wireless client. This may take up to two minutes. Then the wireless client is able to communicate with the WRE6505 securely.

The following figure shows you how to set up wireless network and security by pressing a button on both WRE6505 and wireless client (the NWD-211AN in this example).

Figure 30 Example WPS Process: PBC Method



8.3.2 PIN Configuration

When you use the PIN configuration method, you need to use both WRE6505's configuration interface and the client's utilities.

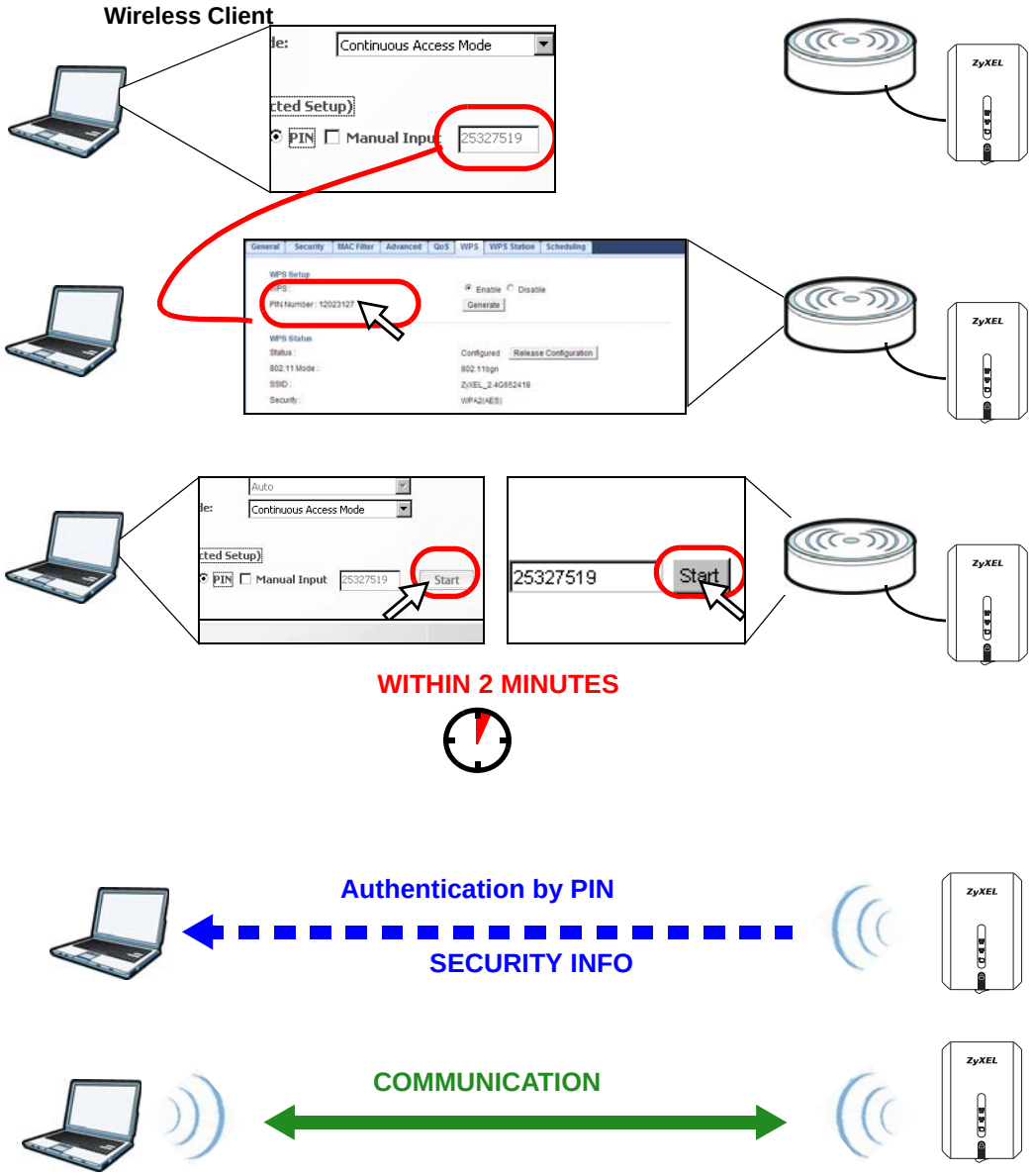
The push button configuration function is only available in AP mode.

1. Launch your wireless client's configuration utility. Go to the WPS Station settings and select the PIN method to get a PIN number.
2. On the WRE6505, navigate to the **Network** > **Wireless LAN (2.4G/5G)** > **WPS** screen.
3. Obtain the PIN number for the WRE6505 or press the **Generate** button to create a new PIN number. See Section 9.9 on page 59
4. Enter the WRE6505 PIN number in the wireless station's utility screen.

   The WRE6505 authenticates the wireless client and sends the proper configuration settings to the wireless client. This may take up to two minutes. Then the wireless client is able to communicate with the WRE6505 securely.

The following figure shows an example of how to set up wireless network and security on WRE6505 and wireless client (ex. NWD210N in this example) by using PIN method.

Figure 31 Example WPS Process: PIN Method



8.4 Connecting the WRE6505 to an AP

Repeater mode allows you to extend the original AP coverage.

- **Selecting an AP from an Automatically Detected List** - create a secure wireless network simply by selecting an AP from a list of detected APs. See Section 8.4.1 on page 47.This is the easier method.

- **Selecting an AP by Manually Entering Security Information** - create a secure wireless network by manually entering the AP's wireless security settings in the WRE6505's interface. See Section 8.4.2 on page 49. This is useful when the AP is hidden.

8.4.1 Selecting an AP from an Automatically Detected List

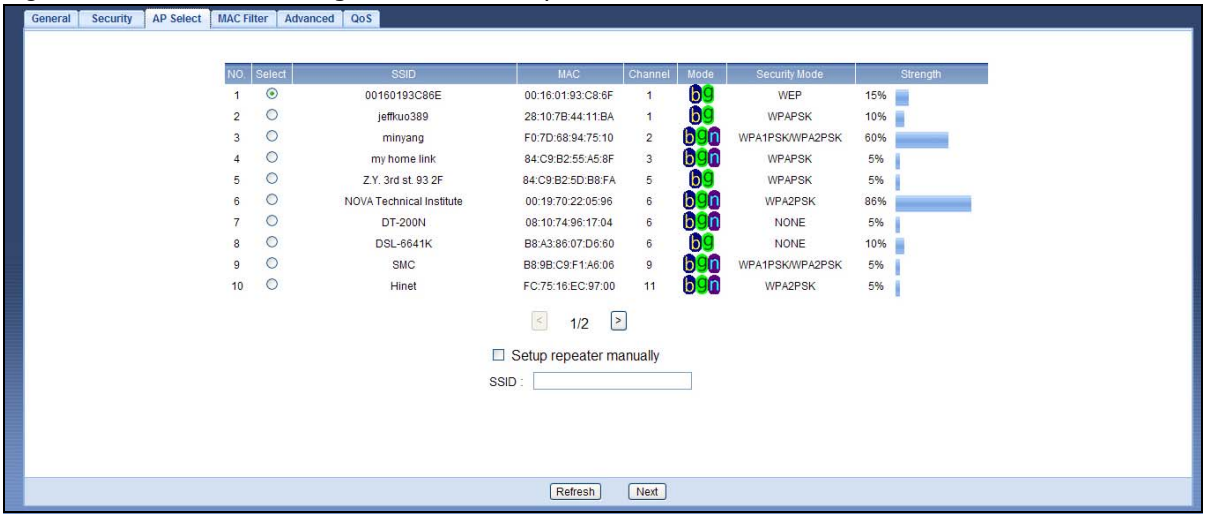
Follow the steps below to create a secure wireless network by selecting an AP from a list of detected APs.

The AP select function is only available in repeater mode. See Section 2.1.1 on page 13.

The instructions require that your hardware is connected (see the Quick Start Guide) and you are logged into the Web Configurator through your LAN connection (see Section 5.2 on page 27).

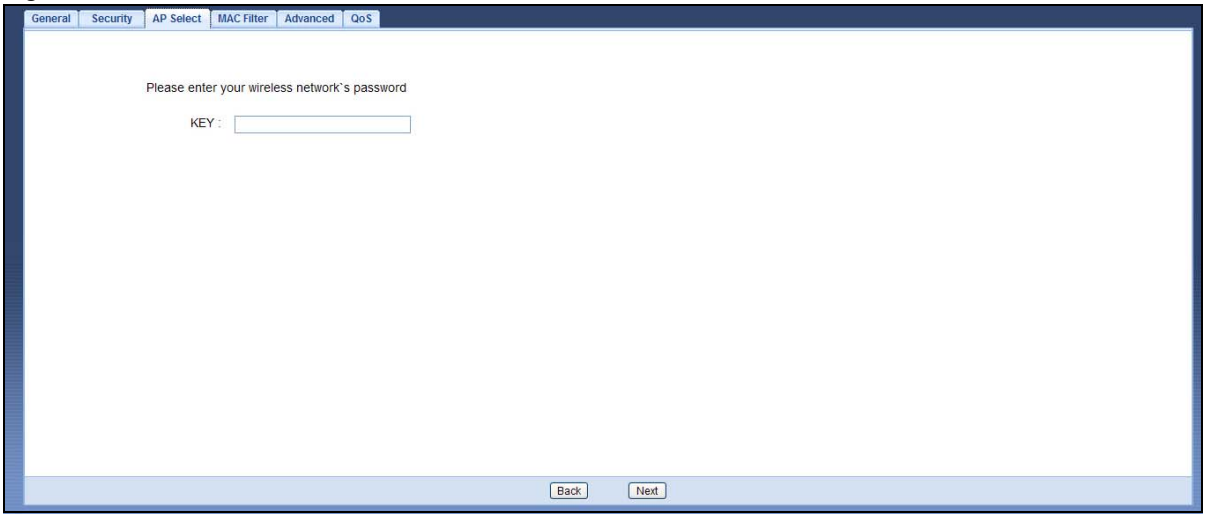
1 Select an AP form the **Select** column and click **Next**.

Figure 32 Tutorial: Selecting an automatically detected AP



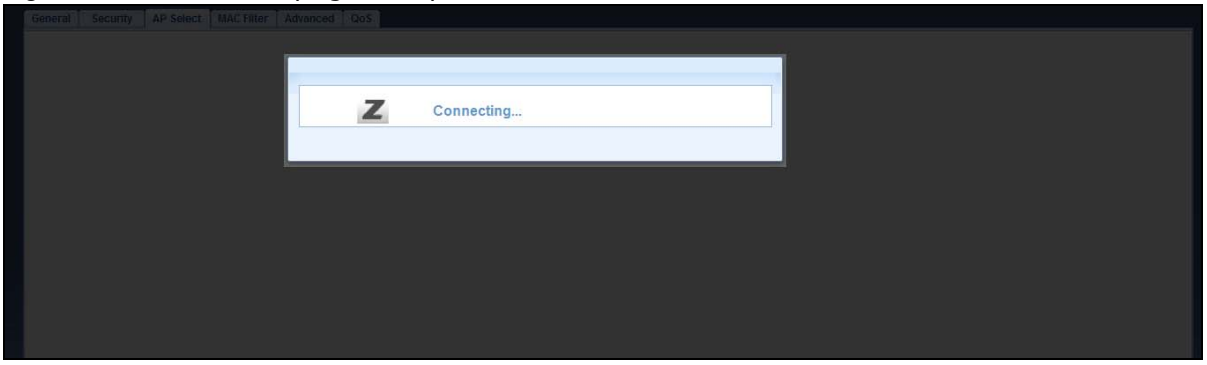
2 Type a key into the **KEY** field and click **Next**.

Figure 33 Tutorial: The KEY field



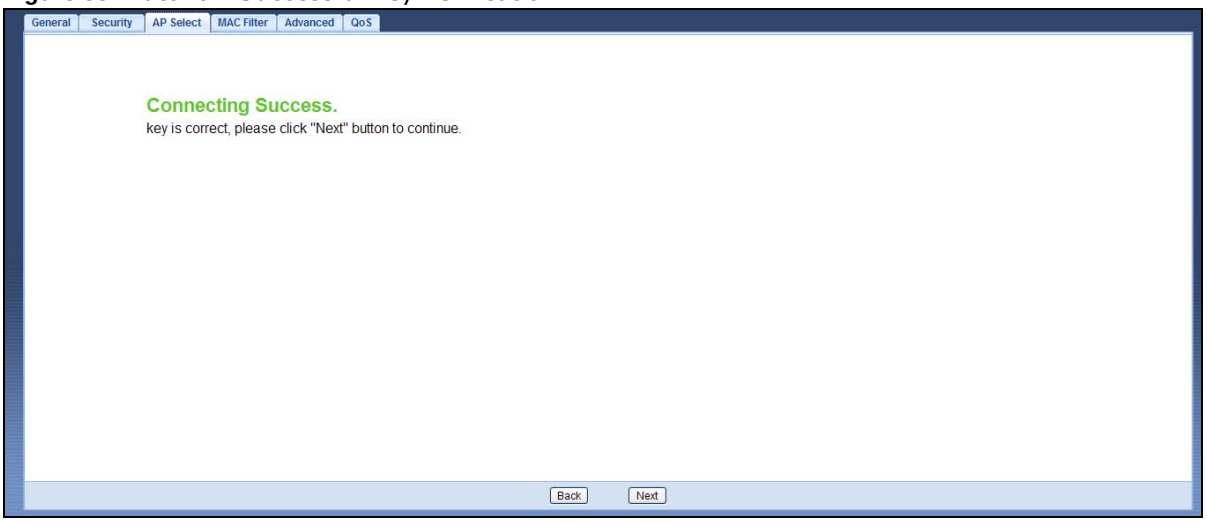
3 Wait for the WRE6505 to verify the key with the AP.

Figure 34 Tutorial: Verifying the key



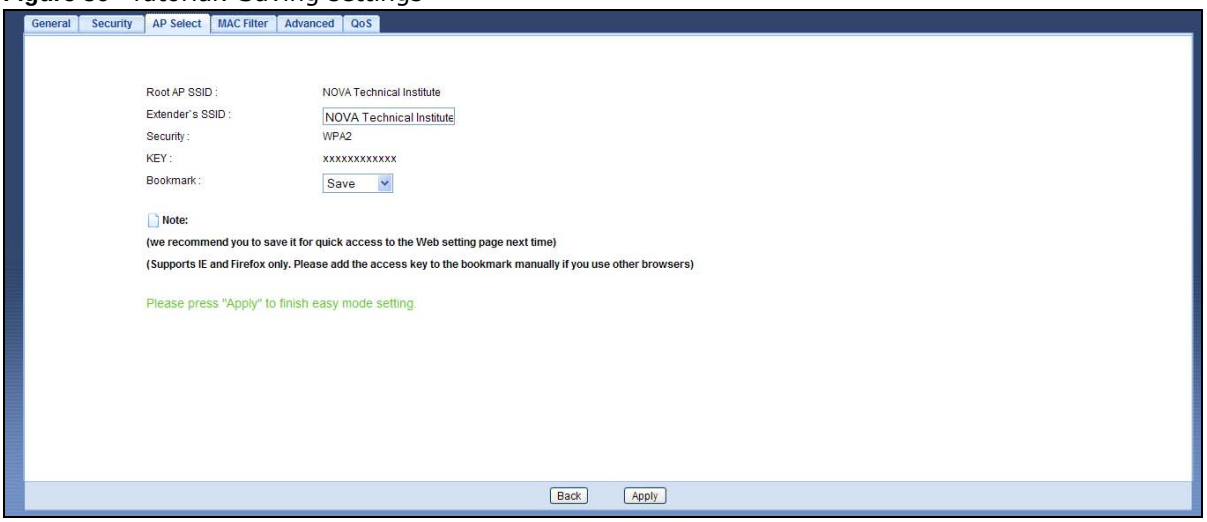
4 When the key is verified, click **Next**.

Figure 35 Tutorial: Successful key verification



5 Click **APPLY** to save settings and restart the WRE6505. Click **CONTINUE** to go to the Status screen without saving the settings and restarting the WRE6505.

Figure 36 Tutorial: Saving settings



8.4.2 Selecting an AP by Manually Entering Security Information

This example shows you how to configure wireless security settings with the following parameters on your WRE6505.

SSID	ExampleSSID
Channel	7
Security	WPA2 PSK

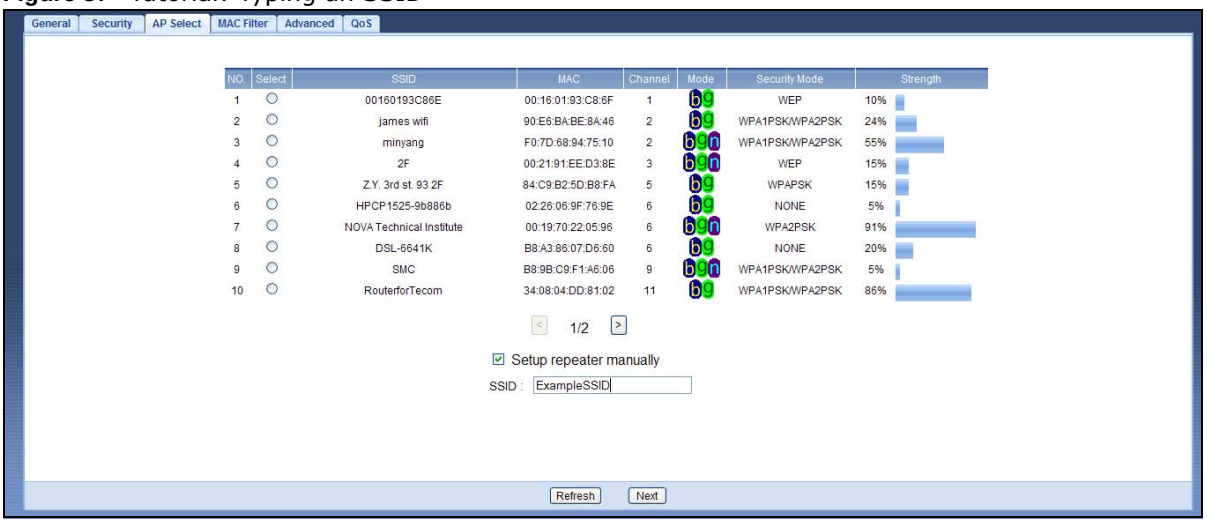
Follow the steps below to create a secure wireless network by manually entering the AP's wireless security settings in the WRE6505's interface.

The instructions require that your hardware is connected (see the Quick Start Guide) and you are logged into the Web Configurator through your LAN connection (see Section 5.2 on page 27).

1 Select **Setup repeater manually**.

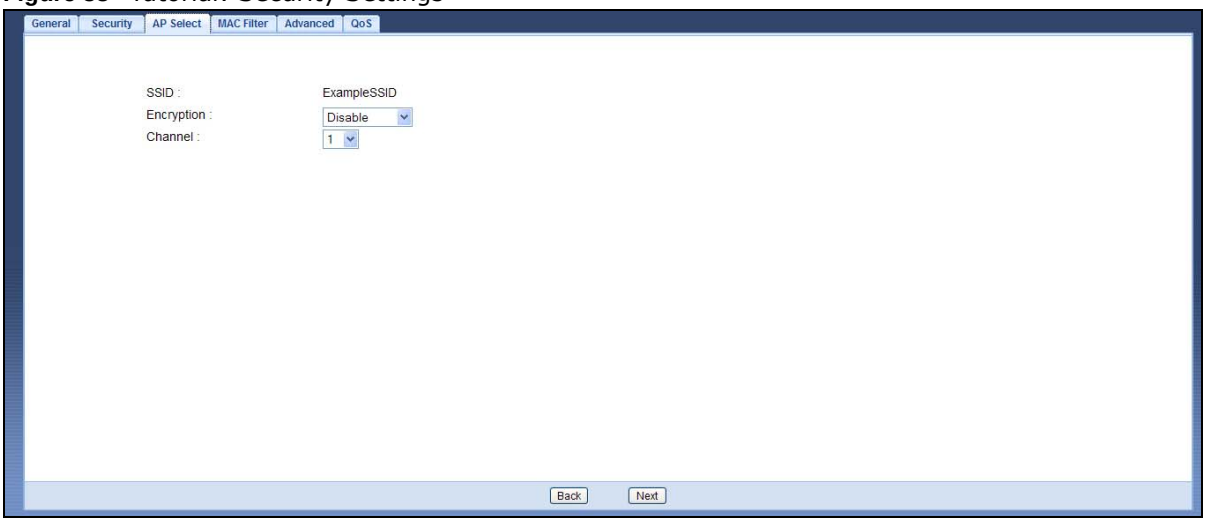
2 Type the SSID of the AP into the **SSID** field and click **Next**.

Figure 37 Tutorial: Typing an SSID



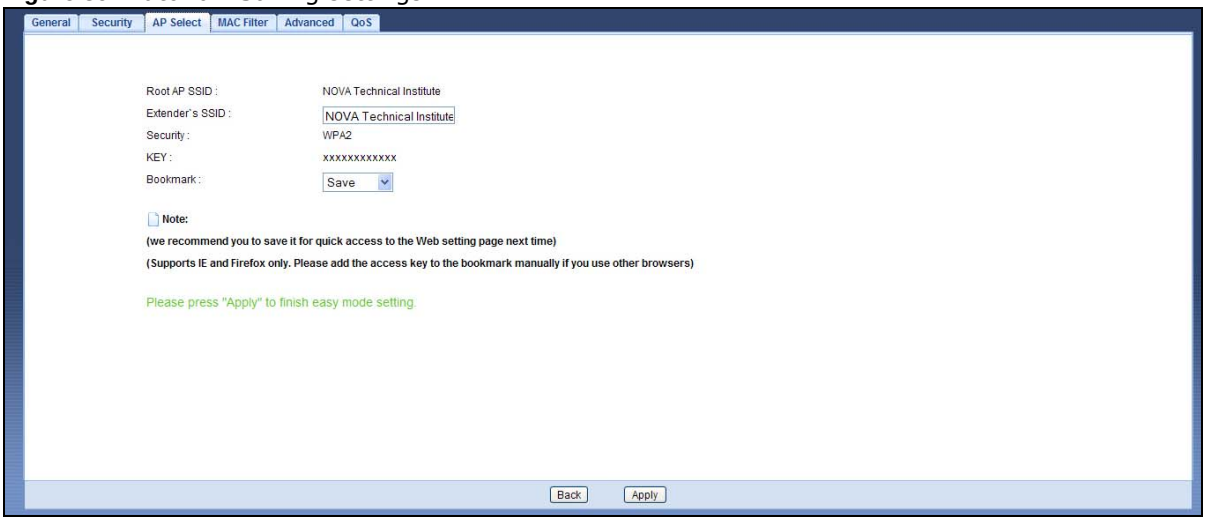
3 Select the security settings and click **Next**.

Figure 38 Tutorial: Security Settings



4 Click **Apply** to save settings and restart the WRE6505. Click **CONTINUE** to go to the Status screen without saving the settings and restarting the WRE6505.

Figure 39 Tutorial: Saving settings



PART II
Technical Reference

9

Wireless LAN

9.1 Overview

This chapter discusses how to configure the wireless network settings in your WRE6505. See Section 1.1 on page 9 for an overview of wireless networks.

9.2 What You Can Do

- Use the **General** screen to enable the Wireless LAN (2.4G/5G), enter the SSID and select the wireless security mode (Section 9.4 on page 55).
- Use the **Security** screen to (Section 9.5 on page 56).
- Use the **MAC Filter** screen to allow or deny wireless stations based on their MAC addresses from connecting to the WRE6505 (Section 9.7 on page 57).
- Use the **Advanced** screen to allow intra-BSS networking and set the RTS/CTS Threshold (Section 9.8 on page 59).
- Use the **WPS** screen to quickly set up a wireless network with strong security, without having to configure security settings manually (Section 9.9 on page 59).
- Use the **AP Select** screen to choose an access point that you want the WRE6505 to connect to. You should know the security settings of the target AP (Section 9.6 on page 56).

9.3 What You Should Know

Every wireless network must follow these basic guidelines.

- Every wireless client in the same wireless network must use the same SSID.

  The SSID is the name of the wireless network. It stands for Service Set IDentity.
- If two wireless networks overlap, they should use different channels.

  Like radio stations or television channels, each wireless network uses a specific channel, or frequency, to send and receive information.
- Every wireless client in the same wireless network must use security compatible with the AP.

  Security stops unauthorized devices from using the wireless network. It can also protect the information that is sent in the wireless network.

9.3.1 Wireless Security Overview

The following sections introduce different types of wireless security you can set up in the wireless network.

9.3.1.1 MAC Address List

Every wireless client has a unique identification number, called a MAC address.[1] A MAC address is usually written using twelve hexadecimal characters[2]; for example, 00A0C5000002 or 00:A0:C5:00:00:02. To get the MAC address for each wireless client, see the appropriate User's Guide or other documentation.

You can use the MAC Address List to tell the AP which wireless clients are allowed to use the wireless network. If a wireless client is allowed to use the wireless network, it still has to have the correct settings (SSID, channel, and security). If a wireless client is not allowed to use the wireless network, it does not matter if it has the correct settings.

This type of security does not protect the information that is sent in the wireless network. Furthermore, there are ways for unauthorized devices to get the MAC address of an authorized wireless client. Then, they can use that MAC address to use the wireless network.

9.3.1.2 Encryption

Wireless networks can use encryption to protect the information that is sent in the wireless network. Encryption is like a secret code. If you do not know the secret code, you cannot understand the message.

Table 16 Types of Encryption for Each Type of Authentication

	NO AUTHENTICATION
Weakest	No Security
↕	Static WEP
	WPA-PSK
Strongest	WPA2-PSK

For example, if users do not log in to the wireless network, you can choose no authentication, if users do log on to the wireless network, you can choose No Security, **Static WEP**, **WPA-PSK**, or **WPA2-PSK**.

Usually, you should set up the strongest encryption that every wireless client in the wireless network supports. Suppose the wireless network has two wireless clients. Device A only supports WEP, and device B supports WEP and WPA-PSK. Therefore, you should set up **Static WEP** in the wireless network.

Note: It is recommended that wireless networks use WPA-PSK, or stronger encryption. IEEE 802.1x and WEP encryption are better than none at all, but it is still possible for unauthorized devices to figure out the original information pretty quickly.

Many types of encryption use a key to protect the information in the wireless network. The longer the key, the stronger the encryption. Every wireless client in the wireless network must have the same key.

1. Some wireless devices, such as scanners, can detect wireless networks but cannot use wireless networks. These kinds of wireless devices might not have MAC addresses.
2. Hexadecimal characters are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F.

9.3.1.3 WPS

Wi-Fi Protected Setup (WPS) is an industry standard specification, defined by the Wi-Fi Alliance. WPS allows you to quickly set up a wireless network with strong security, without having to configure security settings manually. Depending on the devices in your network, you can either press a button (on the device itself, or in its configuration utility) or enter a PIN (Personal Identification Number) in the devices. Then, they connect and set up a secure network by themselves. See how to set up a secure wireless network using WPS in the Section 8.3 on page 43.

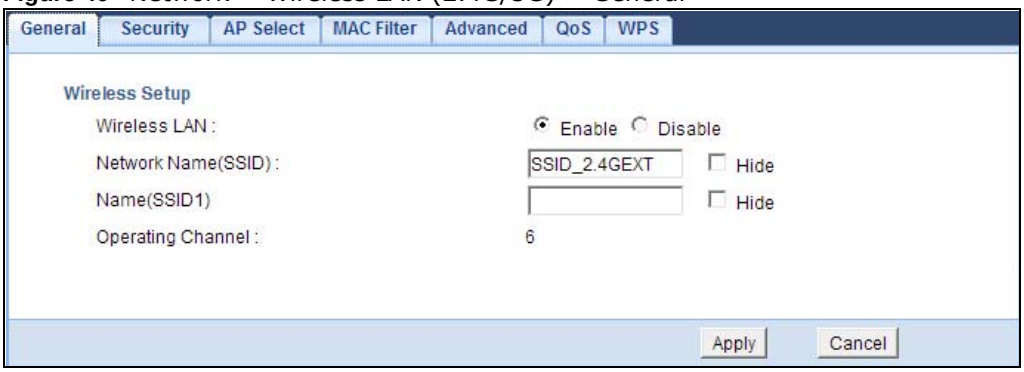
9.4 General Wireless LAN Screen

Use this screen to enable the Wireless LAN, enter the SSID and select the wireless security mode.

Note: If you are configuring the WRE6505 from a computer connected to the wireless LAN and you change the WRE6505's SSID, channel or security settings, you will lose your wireless connection when you press **Apply** to confirm. You must then change the wireless settings of your computer to match the WRE6505's new settings.

Click **Network** > **Wireless LAN (2.4G/5G)** to open the **General** screen.

Figure 40 Network > Wireless LAN (2.4G/5G) > General



The following table describes the general wireless LAN labels in this screen.

Table 17 Network > Wireless LAN (2.4G/5G) > General

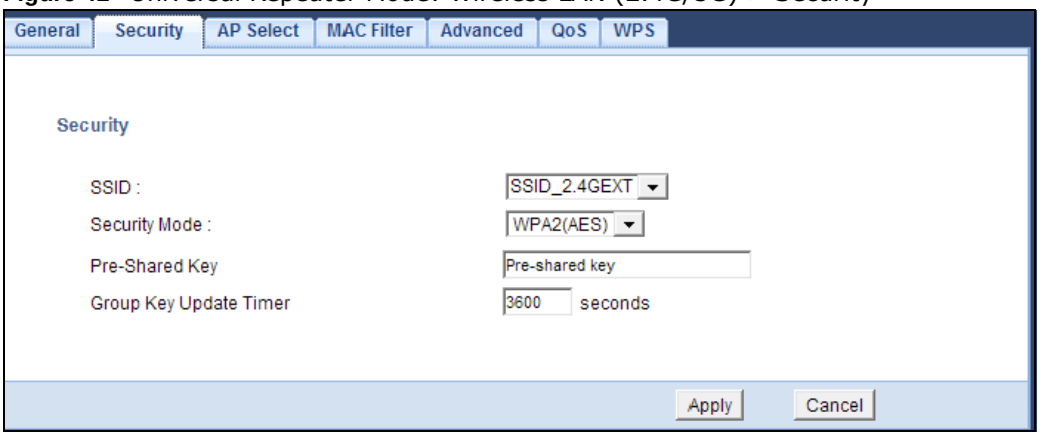
LABEL	DESCRIPTION
Wireless Setup	
Wireless LAN	This is turned on by default. Click **Disable** to turn off the wireless LAN function.
Network Name (SSID) or Name (SSID1~3)	The SSID (Service Set IDentity) identifies the Service Set with which a wireless client is associated. Enter a descriptive name (up to 32 printable characters found on a typical English language keyboard) for the wireless LAN. You can configure up to two SSIDs to enable two BSSs (Basic Service Sets) on the WRE6505. Wireless clients can use different SSIDs to associate with the same access point.
Hide	Select this check box to hide the SSID in the outgoing beacon frame so a wireless client cannot obtain the SSID through scanning using a site survey tool.
Operating Channel	This displays the channel the WRE6505 is currently using.

Table 17 Network > Wireless LAN (2.4G/5G) > General (continued)

LABEL	DESCRIPTION
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to return to the previous menu without saving.

9.5 Security

Figure 41 Universal Repeater Mode: Wireless LAN (2.4G/5G) > Security



The following table describes the labels in this screen.

Table 18 Universal Repeater Mode: Wireless LAN (2.4G/5G) > Security

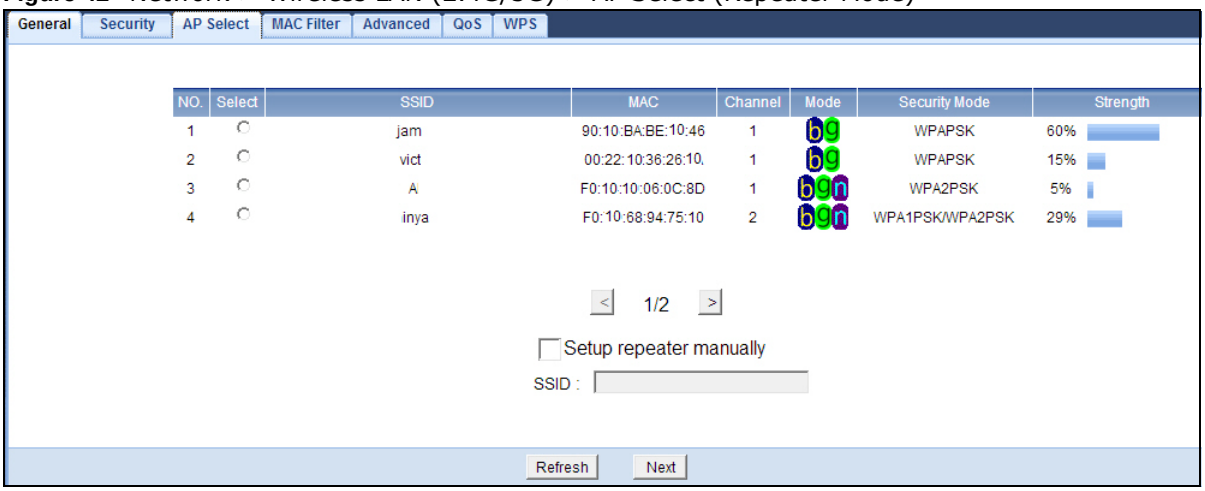
LABEL	DESCRIPTION
Security	
SSID	Enter the name of the access point to which you are connecting.
Security Mode	Select **No Security** or the available modes to match as provided by the source AP or wireless router.
Pre-Shared Key	Enter the security pre-shared key as provided by the source AP or wireless router.
Group Key Update Timer	The Group Key Update Timer is the rate at which the AP sends a new group key out to all clients. The default is 3600 seconds (60 minutes).
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to reload the previous configuration for this screen.

9.6 AP Select Screen

Use this screen (available in repeater mode only) to choose an access point that you want the WRE6505 to connect to. You should know the security settings of the target AP.

To open this screen, click **Network** > **Wireless LAN (2.4G/5G)** > **AP Select** tab.

Figure 42 Network > Wireless LAN (2.4G/5G) > AP Select (Repeater Mode)



The following table describes the labels in this screen.

Table 19 Network > Wireless LAN (2.4G/5G) > AP Select (Repeater Mode)

LABEL	DESCRIPTION
Select	Use the radio button to select the wireless device to which you want to connect.
SSID	This displays the Service Set IDentity of the wireless device. The SSID is a unique name that identifies a wireless network. All devices in a wireless network must use the same SSID.
MAC	This displays the MAC address of the wireless device.
Channel	This displays the channel number used by this wireless device.
Mode	This displays which IEEE 802.11b/g/n wireless networking standards the wireless device supports.
Security Mode	This displays the type of security configured on the wireless device. When **no** is shown, no security is configured and you can connect to it without a password.
Strength	This displays the strength of the wireless signal. The signal strength mainly depends on the antenna output power and the distance between your WRE6505 and this device.
<	Click **<** to see the previous page of APs.
>	Click **>** to see the next page of APs.
Setup repeater manually	Select this to setup the AP manually.
SSID	If **Setup repeater manually** is selected, use this field to type the SSID of the AP. This is useful when the AP's SSID is hidden.
Refresh	Click **Refresh** to search for available wireless devices within transmission range and update this table.
Next	Click **Next** to start the next step in the AP setup process.

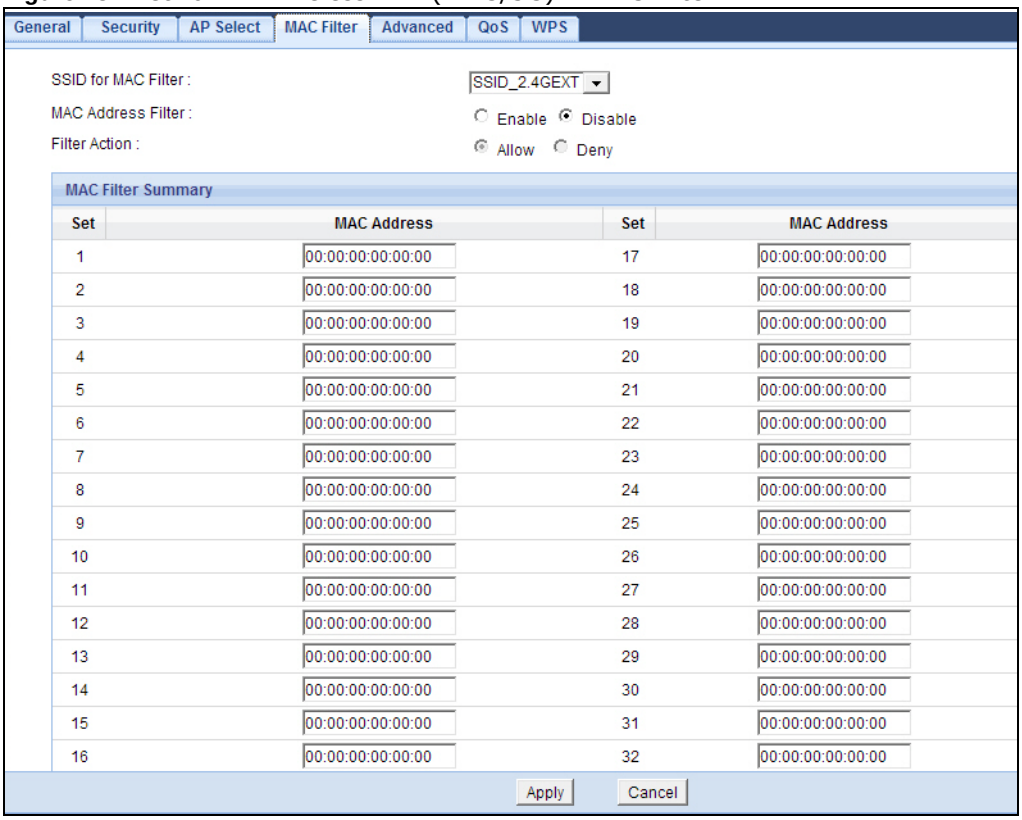
9.7 MAC Filter

The MAC Filter screen allows you to specify which devices are allowed to access the WRE6505, while denying access to all unspecified devices. Every Ethernet device has a unique MAC (Media Access Control) address. The MAC address is assigned at the factory and consists of six pairs of

hexadecimal characters, for example, 00:A0:C5:00:00:02. You need to know the MAC address of the devices to configure this screen.

To change your WRE6505's MAC Address List settings, click **Network** > **Wireless LAN (2.4G/5G)** > **MAC Filter**. The screen appears as shown.

Figure 43 Network > Wireless LAN (2.4G/5G) > MAC Filter



The following table describes the labels in this menu.

Table 20 Network > Wireless LAN (2.4G/5G)> MAC Address List

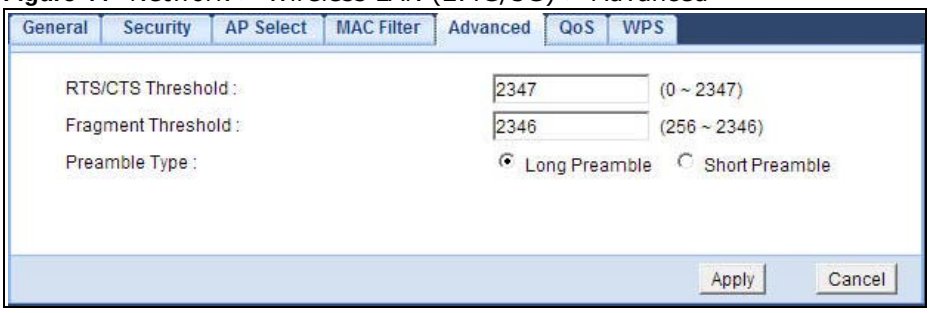
LABEL	DESCRIPTION
Active	Select this to enable MAC address filtering.
SSID for MAC Filter	Select the SSID for which you want to configure MAC filtering.
MAC Address Filter	Select **Enable** to allow MAC address filtering (default: Disable).
Filter Action	Select **Disable** to deactivate the MAC filtering rule. Select **Allow** to permit access to the WRE6505, MAC addresses not listed will be denied access to the WRE6505.
Set	This is the index number of the MAC address.
MAC Address	Enter the MAC addresses of the wireless station to include in the rule. Enter the MAC addresses in a valid MAC address format, that is, six hexadecimal character pairs, for example, 12:34:56:78:9a:bc.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to return to the previous menu without saving.

9.8 Wireless LAN Advanced Screen

Use this screen to configure advanced wireless LAN parameters.

Click **Network** > **Wireless LAN (2.4G/5G)** > **Advanced**. The screen appears as shown.

Figure 44 Network > Wireless LAN (2.4G/5G) > Advanced



The following table describes the labels in this screen.

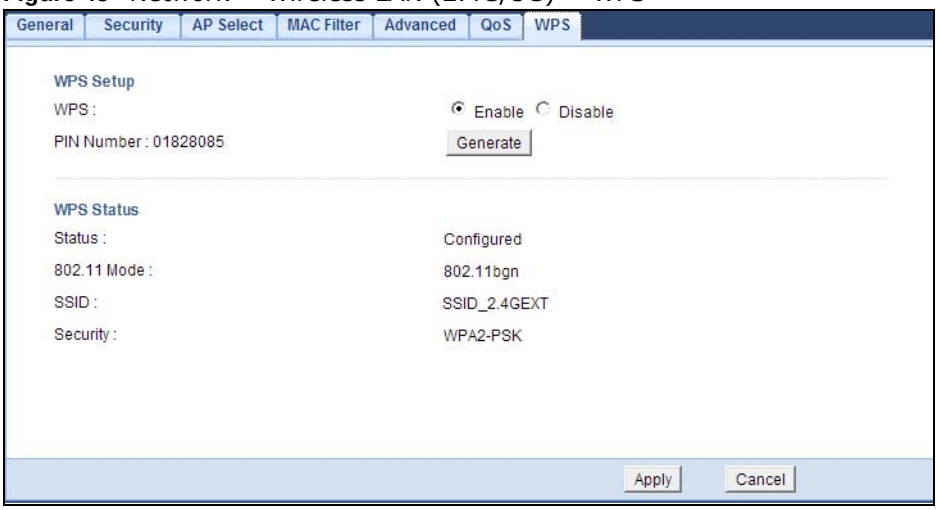
Table 21 Network > Wireless LAN (2.4G/5G) > Advanced

LABEL	DESCRIPTION
RTS/CTS Threshold	Data with its frame size larger than this value will perform the RTS (Request To Send)/ CTS (Clear To Send) handshake. Enter a value between **0** and **2347**.
Fragmentation Threshold	The threshold (number of bytes) for the fragmentation boundary for directed messages. It is the maximum data fragment size that can be sent. Enter an even number between **256** and **2346**.
Preamble Type	A preamble affects the timing in your wireless network. There are two preamble modes: long and short. If a device uses a different preamble mode than the WRE6505 does, it cannot communicate with the WRE6505.
Apply	Click **Apply** to save your changes to the WRE6505.
Cancel	Click **Cancel** to return to the previous menu without saving.

9.9 WPS Screen

Use this screen to enable/disable WPS, view or generate a new PIN and check current WPS status. To open this screen, click **Network** > **Wireless LAN (2.4G/5G)** > **WPS** tab.

Figure 45 Network > Wireless LAN (2.4G/5G) > WPS



The following table describes the labels in this screen.

Table 22 Network > Wireless LAN (2.4G/5G) > WPS

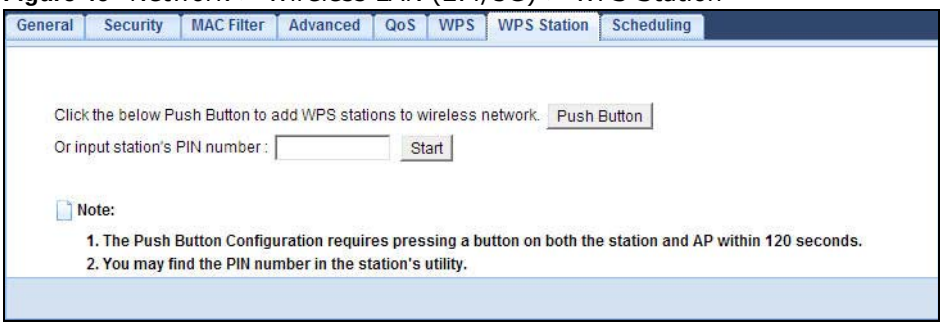
LABEL	DESCRIPTION
WPS Setup	
WPS	Select this to enable the WPS feature.
PIN Number	This displays a PIN number last time system generated. Click **Generate** to generate a new PIN number.
WPS Status	
Status	This displays **Configured** when the WRE6505 has connected to a wireless network using WPS or when **Enable WPS** is selected and wireless or wireless security settings have been changed. The current wireless and wireless security settings also appear in the screen. This displays **Unconfigured** if WPS is disabled and there are no wireless or wireless security changes on the WRE6505 or click **Release Configuration** (AP mode only) to remove the configured wireless and wireless security settings.
Release Configuration (AP mode only)	This button is only available when the WPS status displays **Configured**. Click this button to remove all configured wireless and wireless security settings for WPS connections on the WRE6505.
802.11 Mode	This is the 802.11 mode used. Only compliant WLAN devices can associate with the WRE6505.
SSID	This is the name of the wireless network (the WAP3205 v2's first SSID).
Security	This is the type of wireless security employed by the network.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to return to the previous menu without saving.

9.10 WPS Station Screen

Use this screen (available in AP mode only) when you want to add a wireless station using WPS. To open this screen, click **Network** > **Wireless LAN (2.4/5G)** > **WPS Station** tab.

Note: After you click **Push Button** on this screen, you have to press a similar button in the wireless station utility within 2 minutes. To add the second wireless station, you have to press these buttons on both device and the wireless station again after the first 2 minutes.

Figure 46 Network > Wireless LAN (2.4/5G) > WPS Station



The following table describes the labels in this screen.

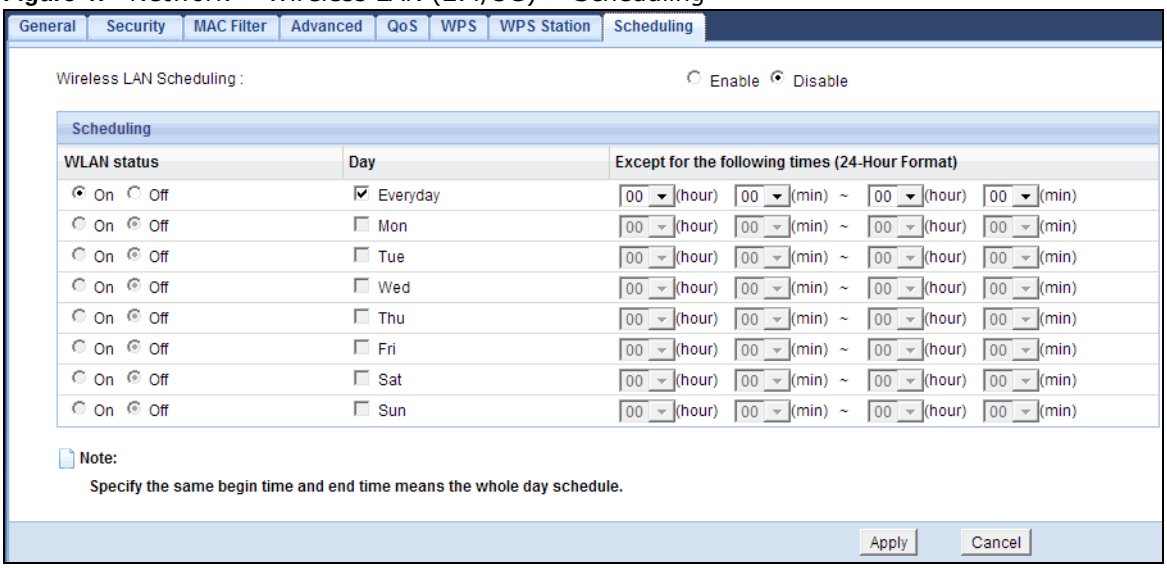
Table 23 Network > Wireless LAN (2.4/5G)> WPS Station

LABEL	DESCRIPTION
Push Button	Use this button when you use the PBC (Push Button Configuration) method to configure wireless stations's wireless settings. See Section 8.3.1 on page 60. Click this to start WPS-aware wireless station scanning and the wireless security information synchronization.
Or input station's PIN number	Use this button when you use the PIN Configuration method to configure wireless station's wireless settings. See Section 8.3.2 on page 61. Type the same PIN number generated in the wireless station's utility. Then click **Start** to associate to each other and perform the wireless security information synchronization.

9.11 Scheduling Screen

Use this screen (available in AP mode only) to set the times your wireless LAN is turned on and off. Wireless LAN scheduling is disabled by default. The wireless LAN can be scheduled to turn on or off on certain days and at certain times. To open this screen, click **Network** > **Wireless LAN (2.4/5G)** > **Scheduling** tab.

Figure 47 Network > Wireless LAN (2.4/5G) > Scheduling



The following table describes the labels in this screen.

Table 24 Network > Wireless LAN (2.4/5G) > Scheduling

LABEL	DESCRIPTION
Wireless LAN Scheduling	
Enable Wireless LAN Scheduling	Select this to enable Wireless LAN scheduling.
Scheduling	
WLAN Status	Select **On** or **Off** to specify whether the Wireless LAN is turned on or off. This field works in conjunction with the **Day** and **For the following times** fields.
Day	Select **Everyday** or the specific days to turn the Wireless LAN on or off. If you select **Everyday** you can not select any specific days. This field works in conjunction with the **For the following times** field.
For the following times (24-Hour Format)	Select a begin time using the first set of **hour** and minute (**min**) drop down boxes and select an end time using the second set of **hour** and minute (**min**) drop down boxes. If you have chosen **On** earlier for the WLAN Status the Wireless LAN will turn on between the two times you enter in these fields. If you have chosen **Off** earlier for the WLAN Status the Wireless LAN will turn off between the two times you enter in these fields.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to reload the previous configuration for this screen.

10 LAN

10.1 Overview

This screen allows you to assign the WRE6505 a fixed or dynamic IP address. The default IP address is 192.168.1.2. In initial configuration, the WRE6505 acts as a DHCP server, so it can assign your computer an IP address in the same network range as the default IP. After the WRE6505 connects to an AP, the DHCP server function is disabled and your computer gets its IP from the AP. If the AP connection is dropped, connect to the WRE6505 again using the default domain name, http://zyxelsetup. The MAC address can be found on a label on the product.

10.2 What You Need To Know

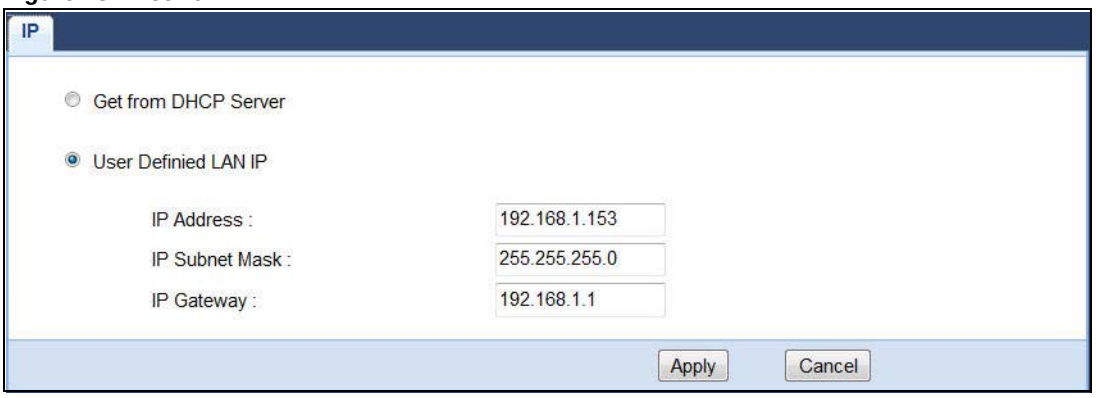
The LAN parameters of the WRE6505 are preset in the factory with the following values:

- IP address of 192.168.1.2 with subnet mask of 255.255.255.0 (24 bits)

10.3 LAN IP Screen

Use this screen to change your basic LAN settings. Click **Network** > **LAN**.

Figure 48 Network > LAN > IP



The following table describes the labels in this screen.

Table 25 Network > LAN > IP

LABEL	DESCRIPTION
Get from DHCP Server	Select this to have the WRE6505 get a dynamic IP address from a DHCP server.
User Defined LAN IP	Click this to enable the manual IP configuration.
IP Address	Enter the IP address of your WRE6505 in dotted decimal notation 192.168.1.2 (factory default).
IP Subnet Mask	Enter the subnet mask of your WRE6505 in dotted decimal notation.
IP Gateway	Enter the gateway of your WRE6505 in dotted decimal notation.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to reload the previous configuration for this screen.

11

System

11.1 Overview

This chapter provides information on the **System** screen.

11.2 What You Can Do

Use the **Password** screen to set the password (Section 11.4 on page 66).

Use the **Firmware Upgrade** screen to update firmware (Section 11.5 on page 66).

Use the **Backup / Restore** screen to backup and restore device configurations (Section 11.6 on page 68).

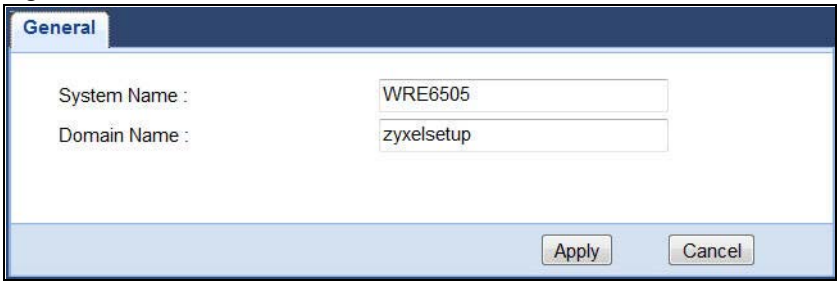
Use the **Language** screen to select the interface display language (Section 11.7 on page 70).

Use the **System Mode** screen to select the WPS behavior (Section 11.8 on page 70).

11.3 General

Use this screen to set the system and domain names. Click **Maintenance** > **General**. The following screen displays.

Figure 49 Maintenance > General



The following table describes the labels in this menu.

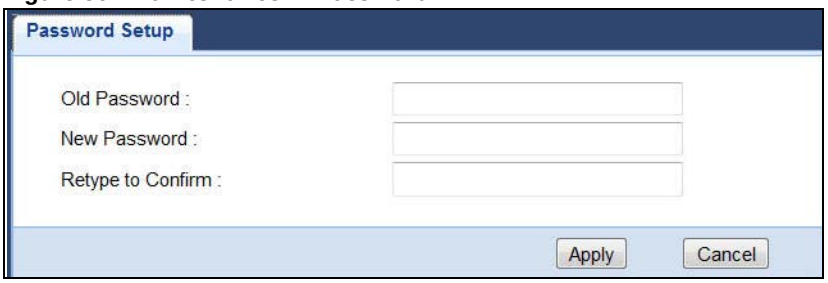
Table 26 Maintenance > General

LABEL	DESCRIPTION
System Name	Type the name used to designate the system.
Domain Name	Type the domain name used to designate the system.
Apply	
Cancel	

11.4 System Password Screen

Use this screen to set the web configurator password. Click **Maintenance** > **System**. The following screen displays.

Figure 50 Maintenance > Password



The following table describes the labels in this screen.

Table 27 Maintenance > System > Password

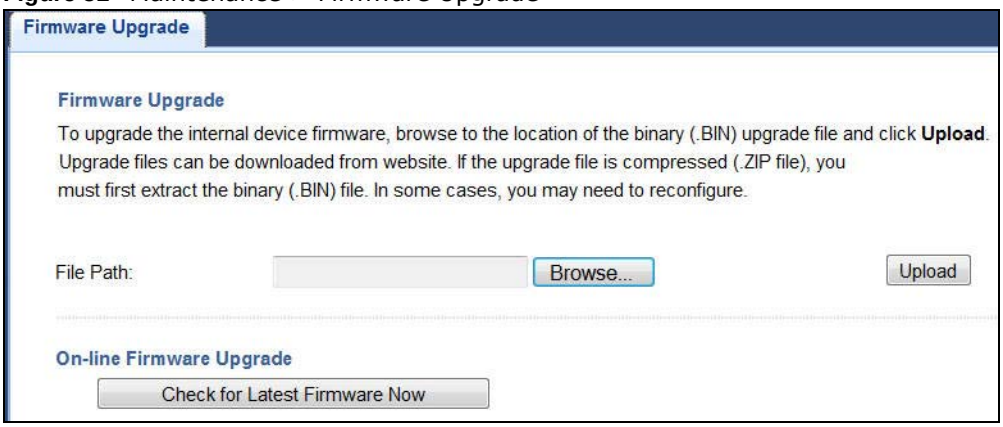
LABEL	DESCRIPTION
Old Password	Type the default password or the existing password you use to access the system in this field.
New Password	Type your new system password (up to 30 characters). Note that as you type a password, the screen displays an asterisk (*) for each character you type.
Retype to Confirm	Type the new password again in this field.
Apply	Click **Apply** to save your changes back to the WRE6505.
Reset	Click **Reset** to begin configuring this screen afresh.
Cancel	

11.5 Firmware Upgrade Screen

Find firmware at www.zyxel.com in a file that (usually) uses the system model name with a "*.bin" extension, e.g., "WRE6505.bin". The upload process uses HTTP (Hypertext Transfer Protocol) and may take up to two minutes. After a successful upload, the system will reboot.

Click **Maintenance > Firmware Upgrade**. Follow the instructions in this screen to upload firmware to your WRE6505.

Figure 51 Maintenance > Firmware Upgrade



The following table describes the labels in this screen.

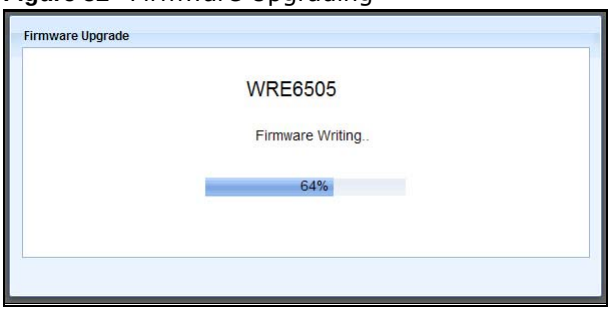
Table 28 Maintenance > Firmware Upgrade

LABEL	DESCRIPTION
Firmware Upgrade	
File Path	Type in the location of the file you want to upload in this field or click **Browse...** to find it.
Browse...	Click **Browse...** to find the .bin file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
Upload	Click **Upload** to begin the upload process. This process may take up to two minutes.
On-line Firmware Upgrade	
Check for Latest Firmware Now	The following fields display when you click this button.
You are currently using firmware version:	The firmware version consists of the trunk version number, model code, and release number. For example, V1.00(AAAG.5) means V1.00 is the trunk number, AAAG represents WRE6505, and 5 means the fifth release.
The Latest Firmware Version	Compare the release number in the previous field with the release number in this one to see if you have the latest firmware. In this example, V1.00(AAAG.5), the numbers are the same (5), so the WRE6505 already has the latest firmware.
Release Date	The date the firmware was issued is shown in year-month-date format.
Release Note	The release note shows what has changed (new features, bug fixes, known issues) in this firmware version. Check the Release Note before deciding to use new firmware.
Size	This is the size of the firmware in bytes. 15073234 is about 15 MB.
Do_Firmware_ Upgrade	Click this button to download and upgrade the new firmware to the WRE6505.

Note: Do not turn off the WRE6505 while firmware upload is in progress!

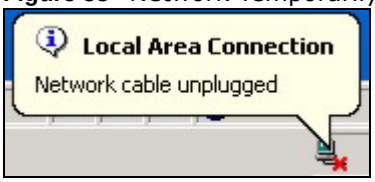
After you see the **Firmware Upgrading** screen, wait until the upgrade process is complete.

Figure 52 Firmware Upgrading



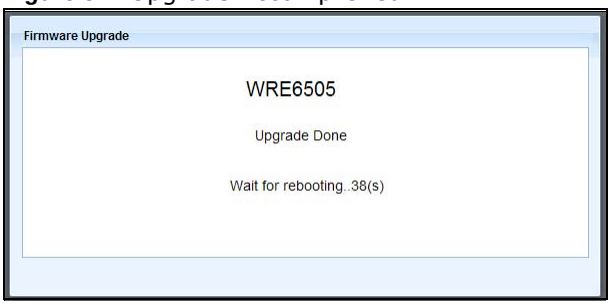
The WRE6505 automatically restarts in this time causing a temporary network disconnect. In some operating systems, you may see the following icon on your desktop.

Figure 53 Network Temporarily Disconnected



After the WRE6505 restarts, the **Upgrade Accomplished** screen appears.

Figure 54 Upgrade Accomplished

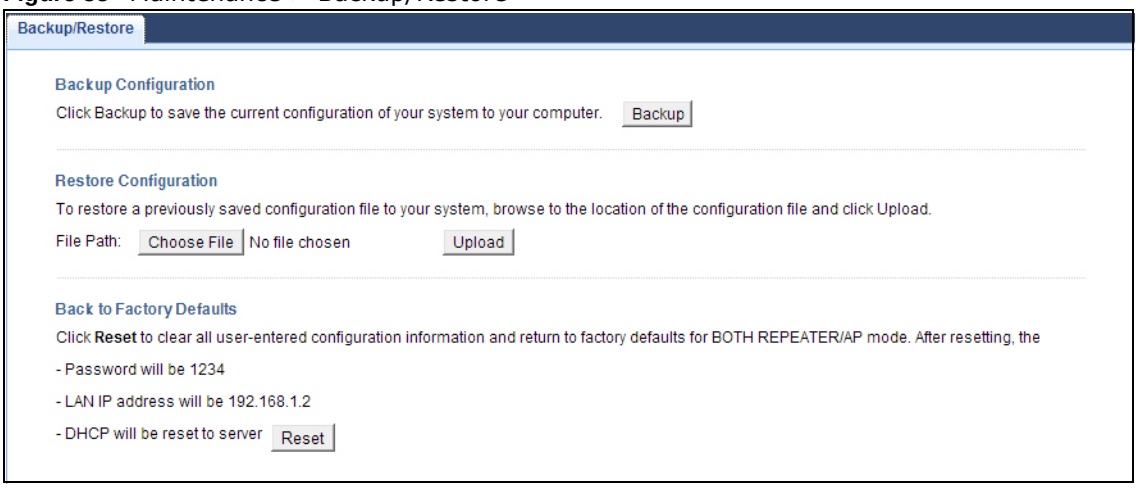


Refresh the web page and log in again and check your new firmware version in the **Status** screen.

11.6 Backup / Restore Screen

Click **Maintenance > Backup/Restore**. Information related to factory defaults, backup configuration, and restoring configuration appears as shown next.

Figure 55 Maintenance > Backup/Restore



11.6.1 Backup Configuration

Backup configuration allows you to back up (save) the WRE6505's current configuration to a file on your computer. Once your WRE6505 is configured and functioning properly, it is highly recommended that you back up your configuration file before making configuration changes. The backup configuration file will be useful in case you need to return to your previous settings.

Click **Backup** to save the WRE6505's current configuration to your computer.

11.6.2 Restore Configuration

Restore configuration allows you to upload a new or previously saved configuration file from your computer to your WRE6505.

Table 29 Maintenance Restore Configuration

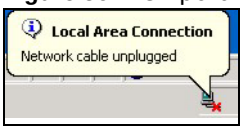
LABEL	DESCRIPTION
File Path	Type in the location of the file you want to upload in this field or click **Browse...** to find it.
Browse...	Click **Browse...** to find the file you want to upload. Remember that you must decompress compressed (.ZIP) files before you can upload them.
Upload	Click **Upload** to begin the upload process.

Note: Do not turn off the WRE6505 while configuration file upload is in progress.

After you see a "configuration upload successful" screen, you must then wait one minute before logging into the WRE6505 again.

The WRE6505 automatically restarts in this time causing a temporary network disconnect. In some operating systems, you may see the following icon on your desktop.

Figure 56 Temporarily Disconnected



If you uploaded the default configuration file you may need to change the IP address of your computer to be in the same subnet as that of the default WRE6505 IP address (192.168.1.2). Refer to your operating system's help files for details on how to set up your computer's IP address.

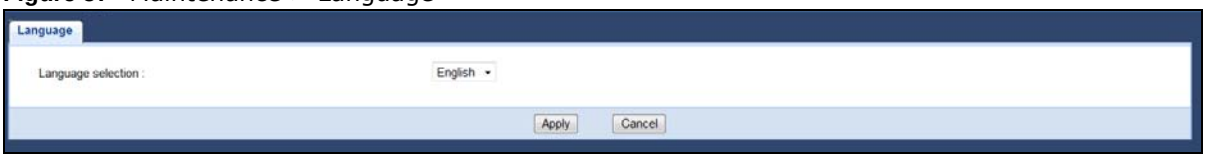
11.6.3 Restore to Factory Defaults

Pressing the **WPS** button (see Section 1.4 on page 12) on the front panel for more than 10 seconds resets the factory defaults of your WRE6505. Refer to Section 1.4 on page 12 for more information on the resetting the WRE6505.

11.7 Language

Click Maintenance > Language to select the language for use in the user interface.

Figure 57 Maintenance > Language



The following table describes the labels in this menu.

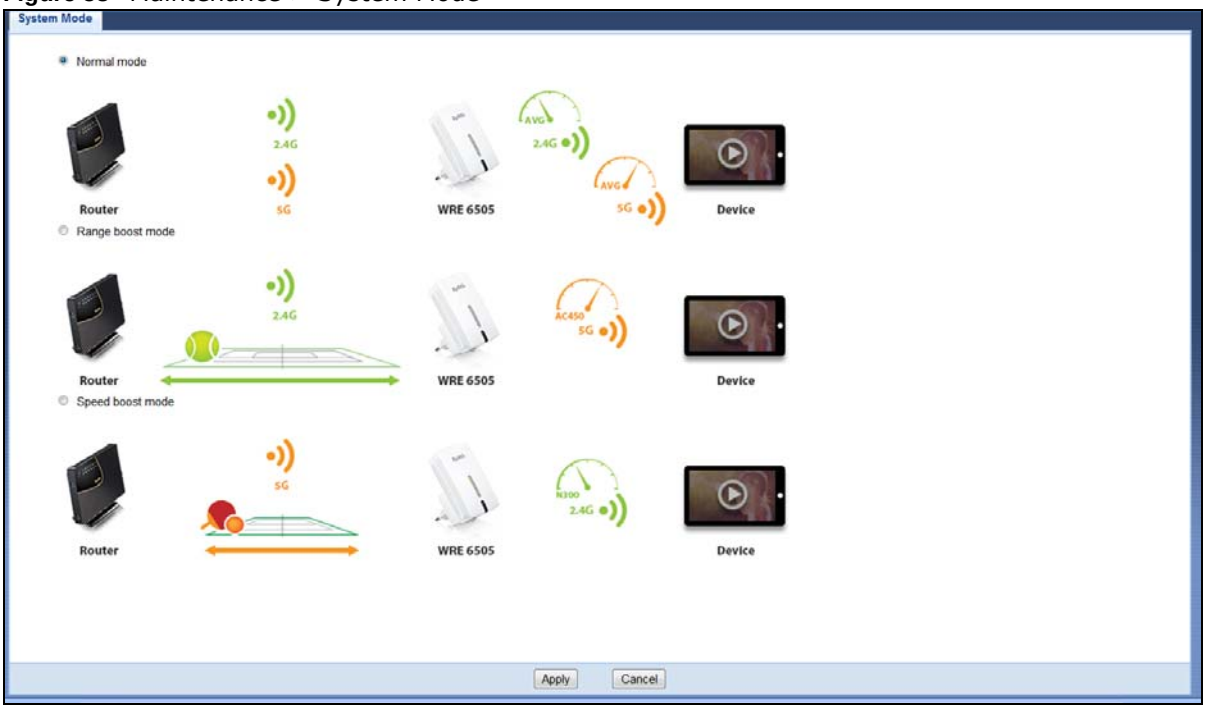
Table 30 Maintenance > Language

LABEL	DESCRIPTION
Language selection	Click the drop-down menu to select the display language.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to reload the previous configuration for this screen.

11.8 System Mode

For further information on System Mode see Section 2.1.1 on page 13.

Figure 58 Maintenance > System Mode



The following table describes the labels in this menu.

Table 31 Maintenance > System Mode

LABEL	DESCRIPTION
Normal mode	The default WPS behavior, both 2.4 GHz and 5 GHz bands are supported in up and down broadcasting.
Range boost mode	Select to set the device to Range **Boost mode--**the 2.4 GHz band is supported on the Down behavior, while the 5 GHz band is supported on the Up behavior.
Speed boost mode	Select to set the device to Range **Boost mode--**the 5 GHz band is supported on the Down behavior, while the 2.4 GHz band is supported on the Up behavior.
Apply	Click **Apply** to save your changes back to the WRE6505.
Cancel	Click **Cancel** to reload the previous configuration for this screen.

11.8.1 System WPS Behavior

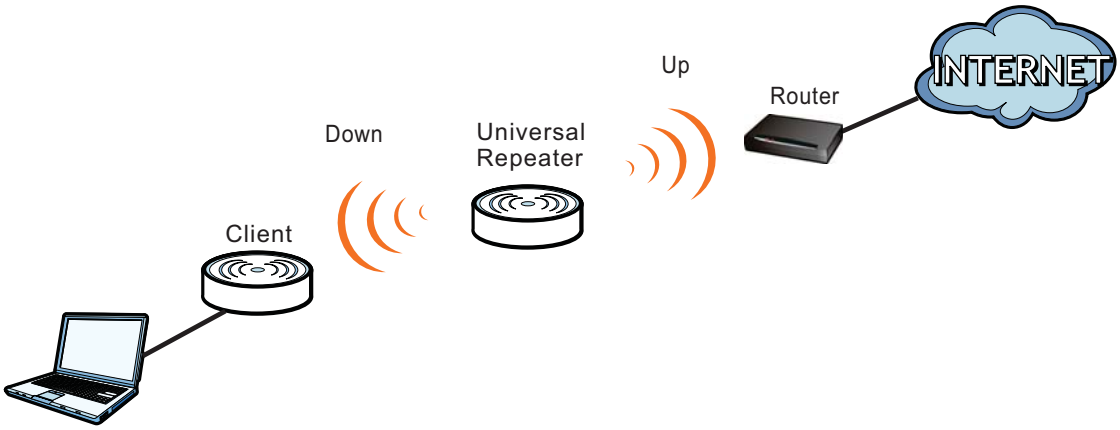
In Universal Repeater mode (see Chapter 2 on page 14), you can select the type of WPS behavior: Normal Mode, Range Boost, or Speed Boost mode.

The device enables you to extend the range of your dual-band router to eliminate "dead spots" in your wireless network. You can choose from normal mode, range boost, or speed boost modes for both your 2.4GHz and 5GHz networks.

The following terms are used to describe the WPS behavior:

- Up: The connection from the WRE6505 to the Router
- Down: The connection from the WRE6505 to a client

Figure 59 Normal Mode with Up and Down Broadcasting



- Home wireless network: 2.4G SSID = Home2.4G_2.4GEXT; 5G SSID = Home5G_5GEXT.
- Work wireless network: 2.4G SSID = Work2.4G_2.4GEXT; 5G SSID = Work5G_5GEXT.
- No profile: There is no currently defined profile.

The following section describes the Normal, Range Boost, and Speed Boost mode (WPS) behaviors in a home and work network connection.

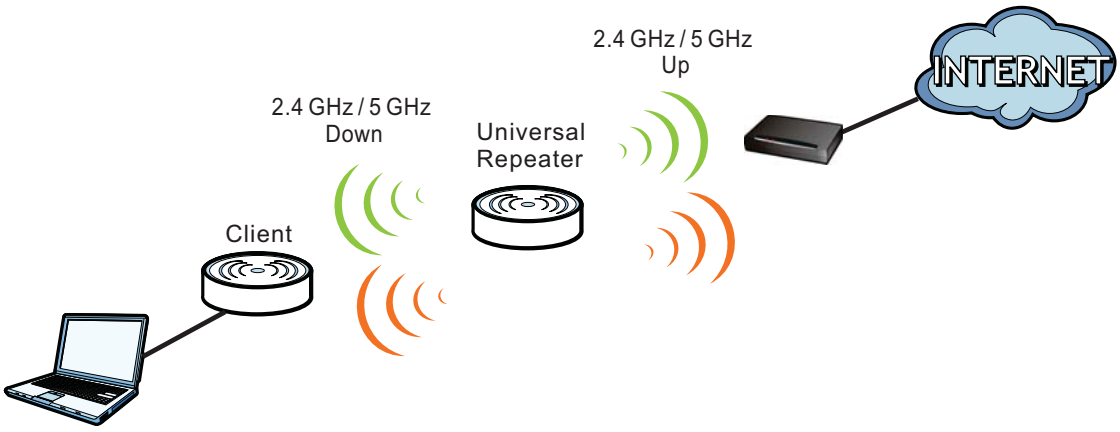
As connection profiles are established, the WRE6505 maintains a record of the varying profiles and automatically joins the network when in range.

Note: The home wireless network is the initial setup environment. The WRE6505 does not have any established network profiles at the time of initial setup.

11.8.1.1 Normal Mode

In normal mode, both Down and Up WPS behaviors are supported for both 2.4 GHz and 5 GHz bands.

Figure 60 Maintenance > System Mode> Normal mode



The following table describes the labels in the previous screen.

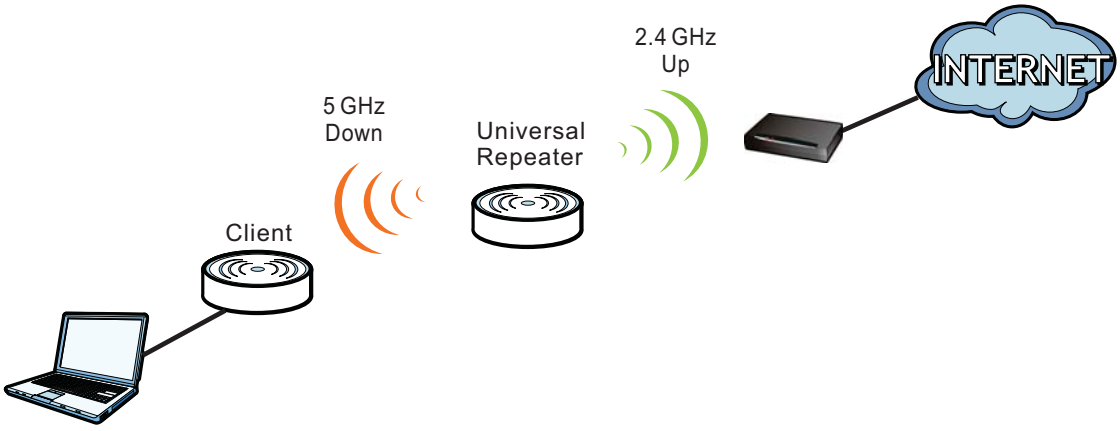
Table 32 WPS Behavior: Normal Mode

	HOME WIRELESS NETWORK		WORK WIRELESS NETWORK	
WPS BAND	**UP**	**DOWN**	**UP**	**DOWN**
2.4 GHz	No profile (Initial Setup)	No profile (Initial Setup)	Work1	Work1_2.4GEXT
	No profile	No profile	No profile	Work2_2.4GEXT
	Home1	Home1_2.4GEXT	Work3	Work3_2.4GEXT
	no profile	no profile	No profile	Work4_2.4GEXT
	Home1	Home1_2.4GEXT	Work3	Work3_2.4GEXT
	Home1	Home1_2.4GEXT	Work1	Work1_2.4GEXT
5 GHz	No profile (Initial Setup)	No profile (Initial Setup)	No profile	Work1_5GEXT
	No profile	No profile	Work2_5GEXT	Work2_5GEXT
	No profile	No profile	No profile	Work3_5GEXT
	Home2	Home2_5GEXT	Work4	Work4_5GEXT
	Home2	Home2_5GEXT	Work2_5GEXT	Work2_5GEXT
	Home2	Home2_5GEXT	Work4	Work4_5GEXT

11.8.1.2 Range Boost Mode

In range boost mode, the 2.4 GHz band is supported on the Down behavior, while the 5 GHz band is supported on the Up behavior.

Figure 61 WPS Behavior: Range Boost Mode



The following table describes the labels in the previous screen.

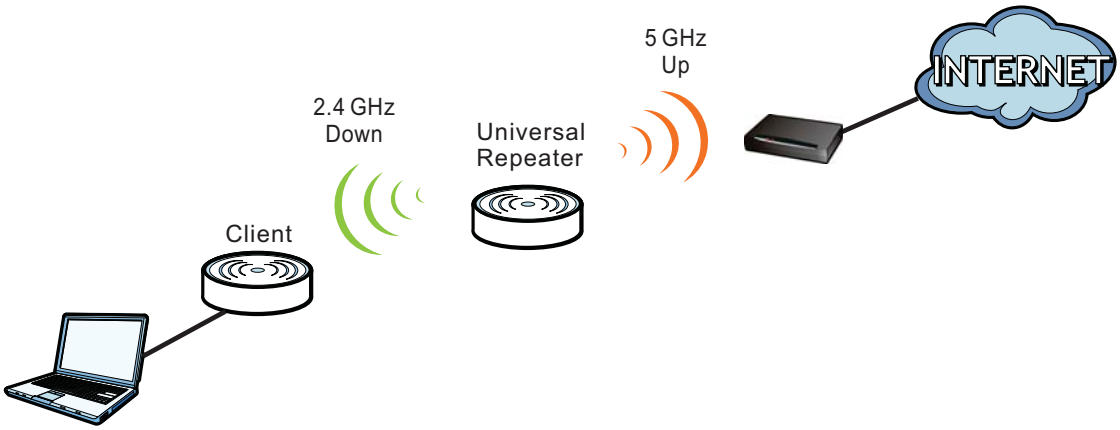
Table 33 WPS Behavior: Range Boost Mode

	HOME WIRELESS NETWORK		WORK WIRELESS NETWORK	
WPS BAND	**UP**	**DOWN**	**UP**	**DOWN**
2.4 GHz	No profile (Initial Setup)	No profile (Initial Setup)	Work1	Off
	Home1	Home1_2.4GEXT	Work3	Off
	No profile	Home2_2.4GEXT	Work3	Off
	Home1	Home1_2.4GEXT	Work3	Off
5 GHz	No profile (Initial Setup)	No profile (Initial Setup)	No profile	Work1_5GEXT
	Home2	Home2_5GEXT	Work2	Work3_5GEXT
	Home2	Home2_5GEXT	Work2	Work3_5GEXT
	No profile	No profile	No profile	Work3_5GEXT

11.8.1.3 Speed Boost Mode

In speed boost mode, the 5 GHz band is supported on the Down behavior, while the 2.4 GHz band is supported on the Up behavior.

Figure 62 WPS Mode: Speed Boost Mode



The following table describes the labels in the previous screen.

Table 34 WPS Mode: Speed Boost Mode

	HOT SPOT 1 (HOME)		HOT SPOT 2 (WORK)	
WPS BAND	**UP**	**DOWN**	**UP**	**DOWN**
2.4 GHz	No profile (Initial Setup)	No profile (Initial Setup)	No profile	Work2_2.4GEXT
	Home1	Home1_2.4GEXT	Work1	Work4_2.4GEXT
	No profile	Home2_2.4GEXT	No profile	Work4_2.4GEXT
	Home1	Home1_2.4GEXT	Work1	Work3_2.4GEXT

Table 34 WPS Mode: Speed Boost Mode (continued)

	HOT SPOT 1 (HOME)		HOT SPOT 2 (WORK)	
WPS BAND	**UP**	**DOWN**	**UP**	**DOWN**
5 GHz	No profile (Initial Setup)	No profile (Initial Setup)	Work2	Off
	Home2	Home2_5GEXT	Work4	Off
	Home2	Home2_5GEXT	Work4	Off
	No profile	No profile	Work3	Off

12

Troubleshooting

This chapter offers some suggestions to solve problems you might encounter. The potential problems are divided into the following categories.

- Power, Hardware Connections, and LEDs
- WRE6505 Access and Login
- Internet Access
- Resetting the WRE6505 to Its Factory Defaults
- Wireless Problems

12.1 Power, Hardware Connections, and LEDs

The WRE6505 does not turn on. None of the LEDs turn on.

1. Make sure the WRE6505 is plugged in to an appropriate power source. Make sure the power source is turned on.
2. Disconnect and re-connect the power adaptor or cord to the WRE6505.
3. If the problem continues, contact the vendor.

One of the LEDs does not behave as expected.

1. Make sure you understand the normal behavior of the LED. See Section 1.3 on page 10.
2. Make sure you understand how the LEDs are enabled or disabled. See Section 1.3 on page 10.
3. Check the hardware connections. See the Quick Start Guide.
4. Inspect your cables for damage. Contact the vendor to replace any damaged cables.
5. Disconnect and re-connect the power adaptor to the WRE6505.
6. If the problem continues, contact the vendor.

12.2 WRE6505 Access and Login

I don't know the IP address of my WRE6505.

1. Click **Start > Run**, enter **cmd**, and then enter **Ping zyxelsetup**.
2. The default IP address is **192.168.1.2**.

   Note: In Repeater mode, you can access the login screen by using the IP address (192.168.1.2) or by typing "http://zyxelsetup" in your browser IP address bar. While in AP mode, connect the WRE6505 to your router (configured under same subnet) and type "http://zyxelsetup" in your browser IP address bar.
3. If you changed the IP address and have forgotten it, you might get the IP address of the WRE6505 by looking up the IP address of the default gateway for your computer. To do this in most Windows computers, click **Start > Run**, enter **cmd**, and then enter **ipconfig**. The IP address of the **Default Gateway** might be the IP address of the WRE6505 (it depends on the network), so enter this IP address in your Internet browser. Login (see the Quick Start Guide for instructions) and go to the **Device Information** table in the **Status** screen. Your WRE6505's IP address is available in the **Device Information** table.
   - If the **DHCP** setting under **LAN information** is **None**, your device has a fixed IP address.
   - If the **DHCP** setting under **LAN information** is **Client**, then your device receives an IP address from a DHCP server on the network.
4. If your WRE6505 is a DHCP client, you can find your IP address from the DHCP server. This information is only available from the DHCP server which allocates IP addresses on your network. Find this information directly from the DHCP server or contact your system administrator for more information.
5. Reset your WRE6505 to change all settings back to their default. This means your current settings are lost. See Section 12.4 on page 80 in the **Troubleshooting** for information on resetting your WRE6505.

I forgot the username and password.

1. The default username is **admin** and default password is **1234**.
2. If this does not work, you have to reset the device to its factory defaults. See Section 11.6.3 on page 70.

I cannot see or access the **Login** screen in the Web Configurator.

1. Make sure you are using the correct IP address.

- The default IP address is 192.168.1.2.
- If you changed the IP address, use the new IP address.
- If you changed the IP address and have forgotten it, see the troubleshooting suggestions for I don't know the IP address of my WRE6505.

2 Check the hardware connections, and make sure the LEDs are behaving as expected. See the Quick Start Guide.

3 Make sure your Internet browser does not block pop-up windows and has JavaScript and Java enabled.

4 Make sure your computer is in the same subnet as the WRE6505. (If you know that there are routers between your computer and the WRE6505, skip this step.)

- If there is a DHCP server on your network, make sure your computer is using a dynamic IP address.
- If there is no DHCP server on your network, make sure your computer's IP address is in the same subnet as the WRE6505.

5 Reset the device to its factory defaults, and try to access the WRE6505 with the default IP address.

6 If the problem continues, contact the network administrator or vendor, or try one of the advanced suggestions.

Advanced Suggestions

- If your computer is connected wirelessly, use a computer that is connected to a **LAN**/**ETHERNET** port.

I can see the **Login** screen, but I cannot log in to the WRE6505.

1 Make sure you have entered the password correctly. The default username is **admin** and default password is **1234**. This field is case-sensitive, so make sure [Caps Lock] is not on.

2 This can happen when you fail to log out properly from your last session. Try logging in again after 5 minutes.

3 Disconnect and re-connect the power adaptor or cord to the WRE6505.

4 If this does not work, you have to reset the device to its factory defaults. See Section 12.4 on page 80.

12.3 Internet Access

I cannot access the Internet.

1. Check the hardware connections, and make sure the LEDs are behaving as expected. See the Quick Start Guide.
2. Try to connect directly to the AP. If you can access the Internet, check that the WRE6505 has associated with the AP by checking the **WLAN STA Information** SSID field shows the SSID of the AP. See Section 9.4 on page 55.
3. If you are trying to access the Internet wirelessly, make sure the wireless settings in the wireless client are the same as the settings in the AP.
4. Disconnect all the cables from your device, and follow the directions in the Quick Start Guide again.
5. If the problem continues, contact your ISP.

I cannot access the Internet anymore. I had access to the Internet (with the WRE6505), but my Internet connection is not available anymore.

1. Check the hardware connections, and make sure the LEDs are behaving as expected. See the Quick Start Guide and Section 1.3 on page 10.
2. Reboot the WRE6505.
3. Try to connect directly to the AP. If you can access the Internet, check that the WRE6505 has associated with the AP by checking the **WLAN STA Information** SSID field shows the SSID of the AP. See Section 9.4 on page 55.
4. If the problem continues, contact your ISP.

The Internet connection is slow or intermittent.

1. There might be a lot of traffic on the network. Look at the LEDs, and check Section 1.3 on page 10. If the WRE6505 is sending or receiving a lot of information, try closing some programs that use the Internet, especially peer-to-peer applications.
2. Check the signal strength. If the signal strength is low, try moving the WRE6505 closer to the AP if possible, and look around to see if there are any devices that might be interfering with the wireless network (for example, microwaves, other wireless networks, and so on).
3. Reboot the WRE6505.
4. If the problem continues, contact the network administrator or vendor, or try one of the advanced suggestions.

   Advanced Suggestion

   - Check the settings for QoS. If it is disabled, you might consider activating it.

12.4 Resetting the WRE6505 to Its Factory Defaults

If you reset the WRE6505, you lose all of the changes you have made. The WRE6505 re-loads its default settings, and the username/password resets to **admin**/**1234**. You have to make all of your changes again.

You will lose all of your changes when you reset the WRE6505 to its factory defaults.

To reset the WRE6505,

1. Make sure the power LED is on.
2. Press the **WPS** button for longer than 10 seconds, the Power LED begins to blink, to set the WRE6505 back to its factory-default configuration.

   OR

3. Click **Maintenance > Backup/Restore** > **Restore** and then click **Reset**.

   If the WRE6505 restarts automatically, wait for the WRE6505 to finish restarting, and log in to the Web Configurator. The username is **admin** and password is **1234**.

   If the WRE6505 does not restart automatically, disconnect and reconnect the WRE6505's power. Then, follow the directions above again.

12.5 Wireless Problems

I cannot access the WRE6505 or ping any computer from the WLAN.

1. Make sure the wireless LAN is enabled on the WRE6505.
2. Make sure the wireless adapter on the wireless station is working properly.
3. Make sure the wireless adapter installed on your computer is IEEE 802.11 compatible and supports the same wireless standard as the WRE6505.
4. Make sure your computer (with a wireless adapter installed) is within the transmission range of the WRE6505.
5. Check that both the WRE6505 and your wireless station are using the same wireless and wireless security settings, and that both the WRE6505 and the AP are using the same wireless and wireless security settings.
6. Make sure traffic between the WLAN and the LAN is not blocked by the MAC Address List of the WRE6505. See Section 9.7 on page 57.

A

Setting Up Your Computer's IP Address

Note: Your specific WRE6505 may not support all of the operating systems described in this appendix. See the product specifications for more information about which operating systems are supported.

This appendix shows you how to configure the IP settings on your computer in order for it to be able to communicate with the other devices on your network. Windows Vista/XP/2000, Mac OS 9/OS X, and all versions of UNIX/LINUX include the software components you need to use TCP/IP on your computer.

If you manually assign IP information instead of using a dynamic IP, make sure that your network's computers have IP addresses that place them in the same subnet.

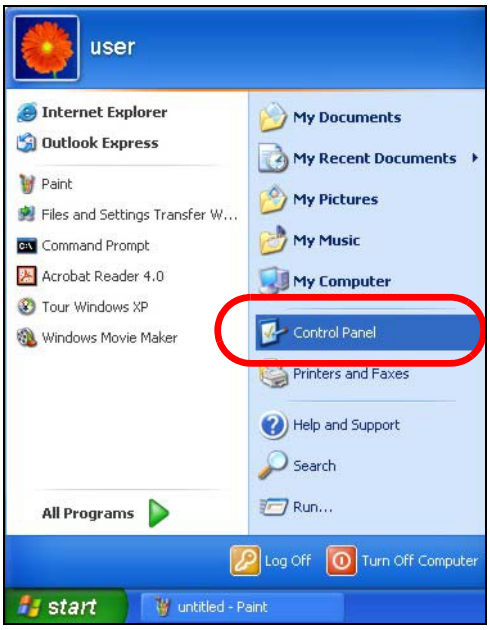
In this appendix, you can set up an IP address for:

- Windows XP/NT/2000 on page 81
- Windows Vista on page 85
- Windows 7 on page 89
- Mac OS X: 10.3 and 10.4 on page 93
- Mac OS X: 10.5 and 10.6 on page 96
- Linux: Ubuntu 8 (GNOME) on page 99
- Linux: openSUSE 10.3 (KDE) on page 103

Windows XP/NT/2000

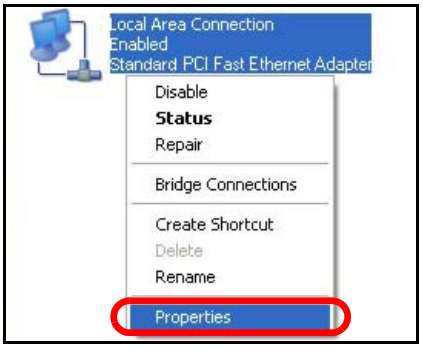
The following example uses the default Windows XP display theme but can also apply to Windows 2000 and Windows NT.

1 Click **Start** > **Control Panel**.

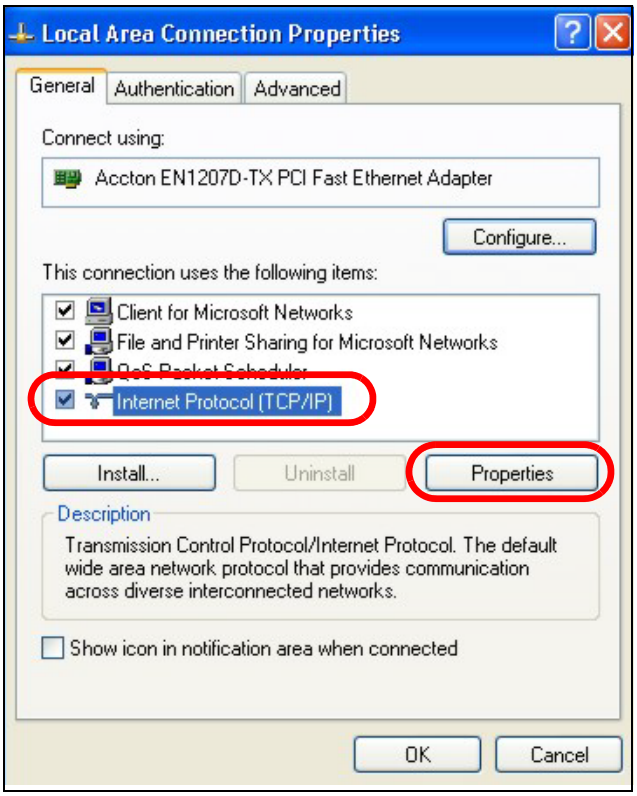


2 In the **Control Panel**, click the **Network Connections** icon.

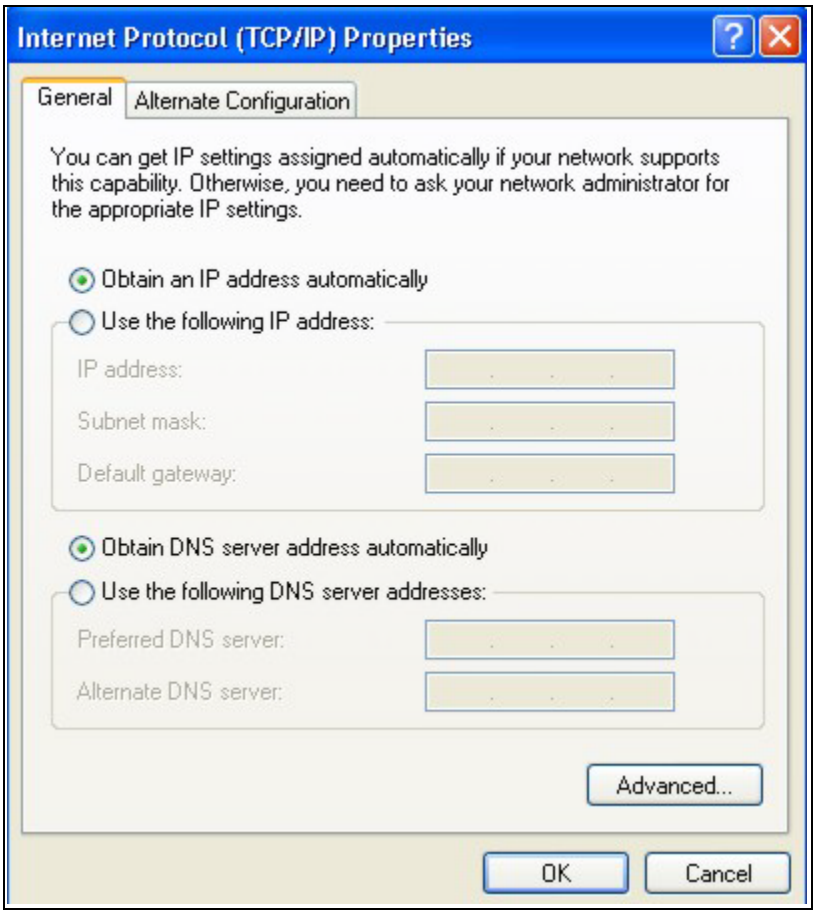
3 Right-click **Local Area Connection** and then select **Properties**.



4 On the **General** tab, select **Internet Protocol (TCP/IP)** and then click **Properties**.



5 The **Internet Protocol TCP/IP Properties** window opens.



6 Select **Obtain an IP address automatically** if your network administrator or ISP assigns your IP address dynamically.

Select **Use the following IP Address** and fill in the **IP address**, **Subnet mask**, and **Default gateway** fields if you have a static IP address that was assigned to you by your network administrator or ISP. You may also have to enter a **Preferred DNS server** and an **Alternate DNS server,** if that information was provided.

7 Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

8 Click **OK** to close the **Local Area Connection Properties** window.

Verifying Settings

1 Click **Start** > **All Programs** > **Accessories** > **Command Prompt**.

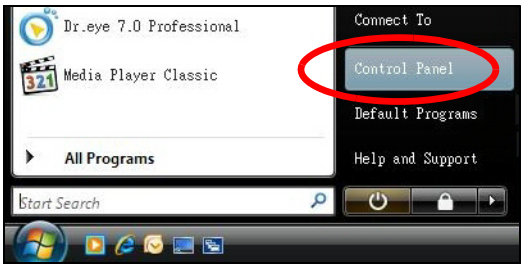
2 In the **Command Prompt** window, type "ipconfig" and then press [ENTER].

You can also go to **Start > Control Panel > Network Connections**, right-click a network connection, click **Status** and then click the **Support** tab to view your IP address and connection information.

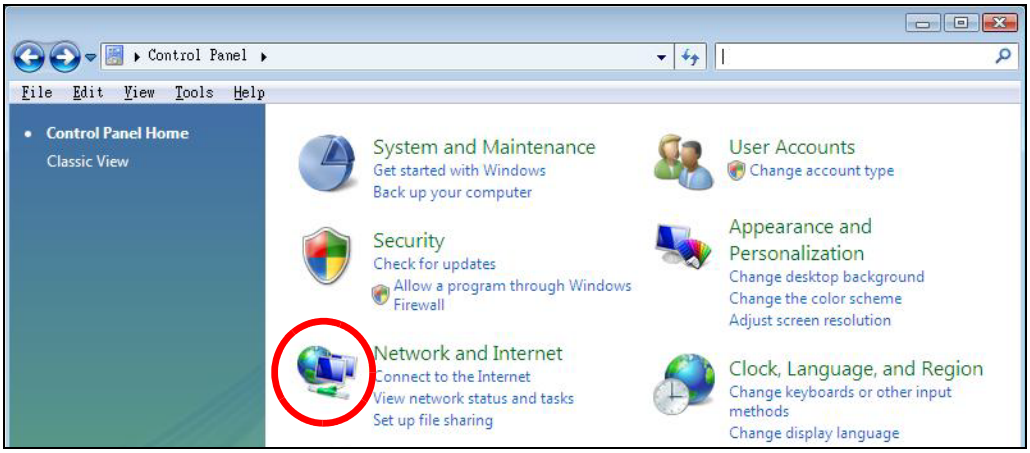
Windows Vista

This section shows screens from Windows Vista Professional.

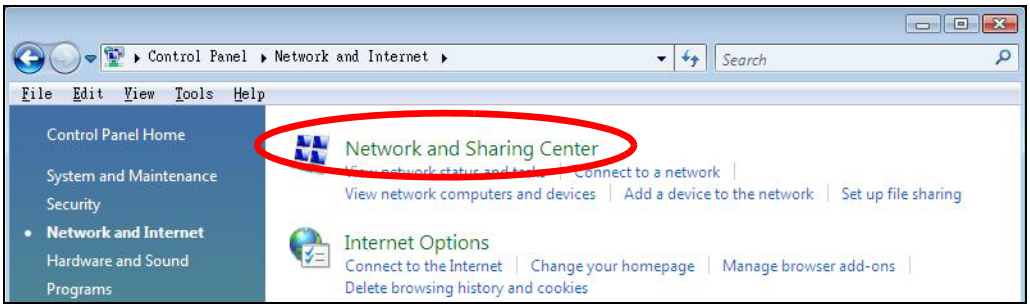
1 Click **Start** > **Control Panel**.



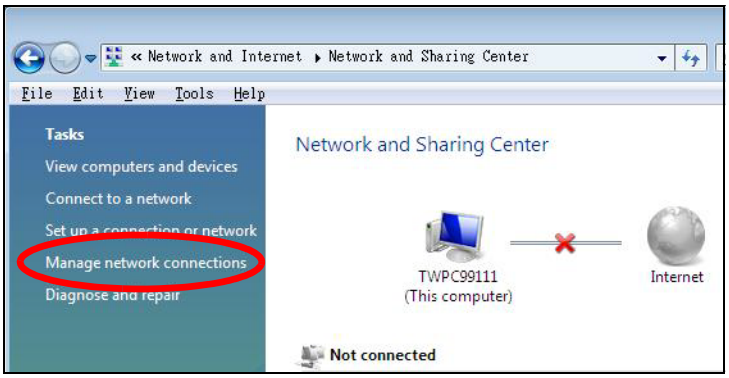
2 In the **Control Panel**, click the **Network and Internet** icon.



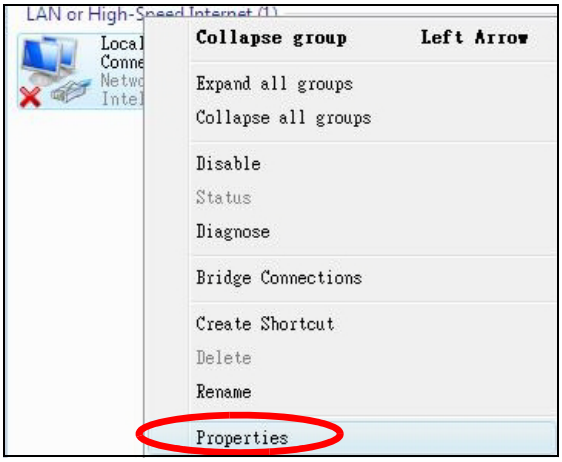
3 Click the **Network and Sharing Center** icon.



4 Click **Manage network connections**.

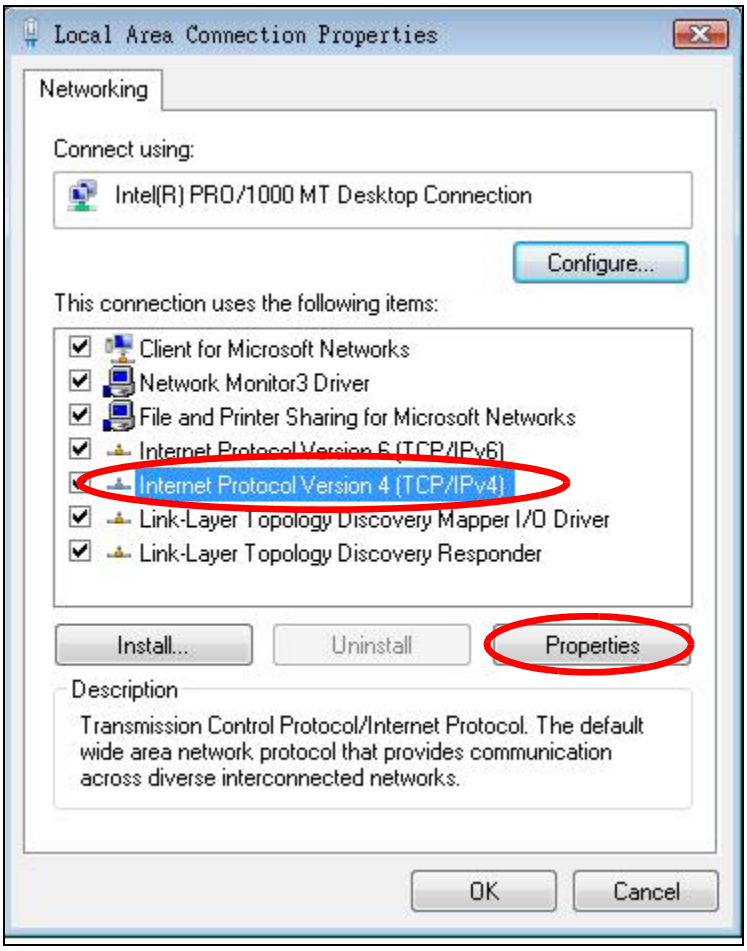


5 Right-click **Local Area Connection** and then select **Properties**.



Note: During this procedure, click **Continue** whenever Windows displays a screen saying that it needs your permission to continue.

6 Select **Internet Protocol Version 4 (TCP/IPv4)** and then select **Properties**.



7 The **Internet Protocol Version 4 (TCP/IPv4) Properties** window opens.

8 Select **Obtain an IP address automatically** if your network administrator or ISP assigns your IP address dynamically.

Select **Use the following IP Address** and fill in the **IP address**, **Subnet mask**, and **Default gateway** fields if you have a static IP address that was assigned to you by your network administrator or ISP. You may also have to enter a **Preferred DNS server** and an **Alternate DNS server,** if that information was provided.Click **Advanced**.

9 Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

10 Click **OK** to close the **Local Area Connection Properties** window.

Verifying Settings

1 Click **Start** > **All Programs** > **Accessories** > **Command Prompt**.

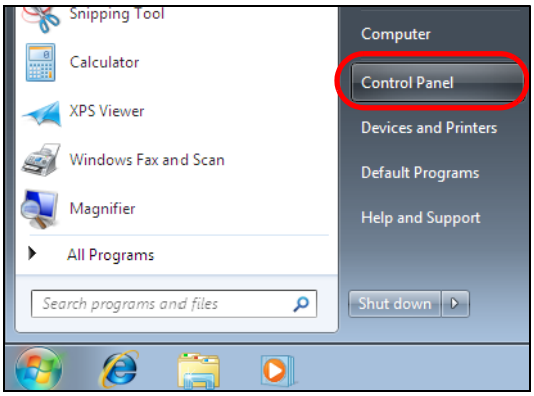
2 In the **Command Prompt** window, type "ipconfig" and then press [ENTER].

You can also go to **Start > Control Panel > Network Connections**, right-click a network connection, click **Status** and then click the **Support** tab to view your IP address and connection information.

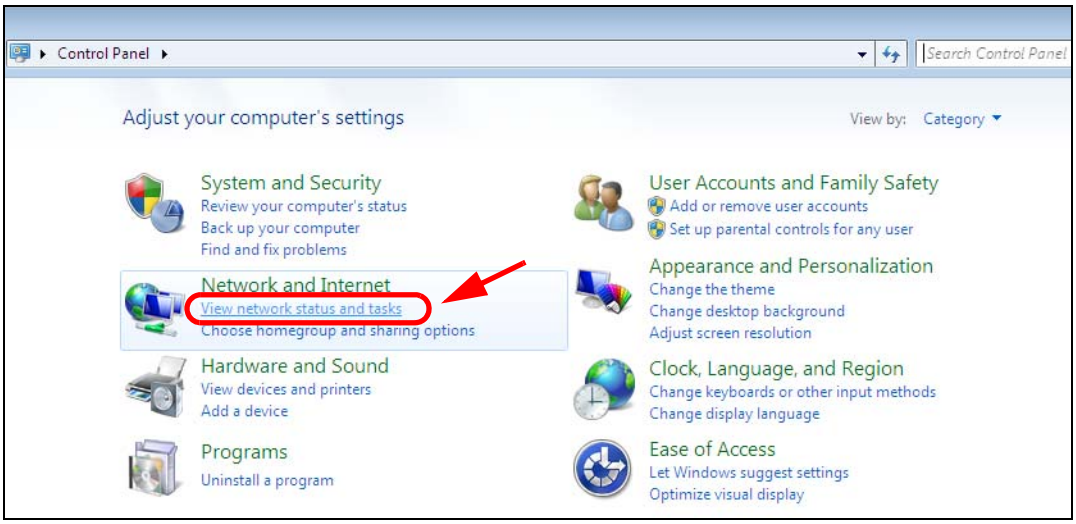
Windows 7

This section shows screens from Windows 7 Enterprise.

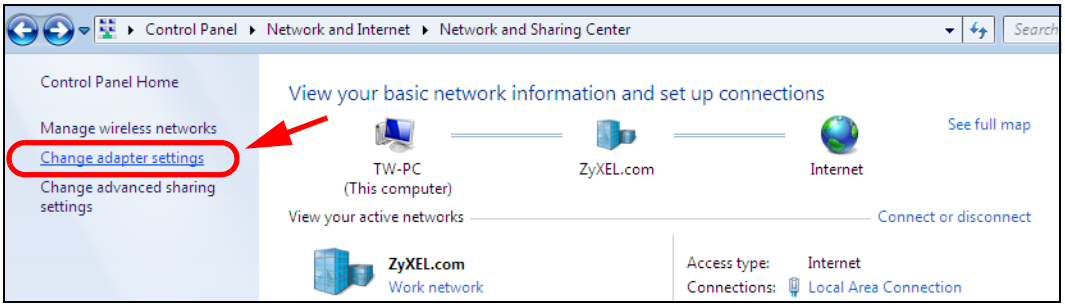
1 Click **Start** > **Control Panel**.



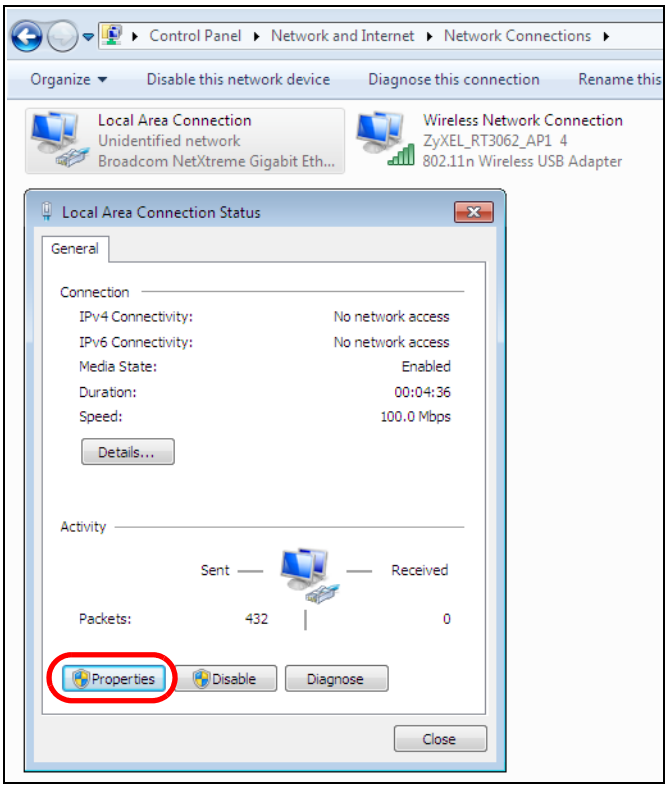
2 In the **Control Panel**, click **View network status and tasks** under the **Network and Internet** category.



3 Click **Change adapter settings**.

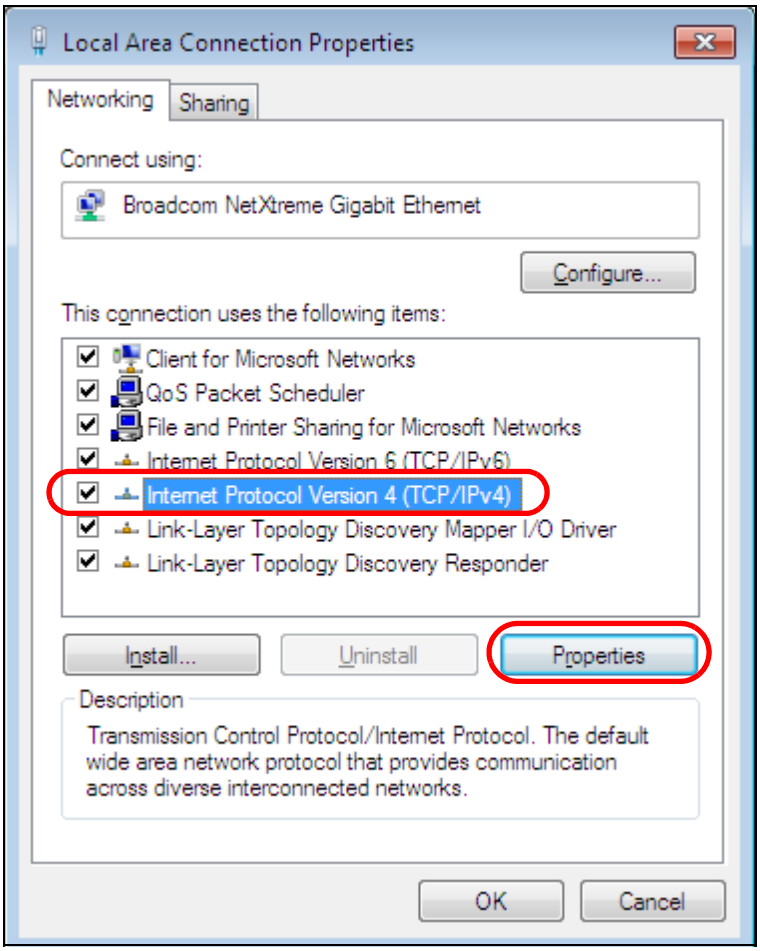


4 Double click **Local Area Connection** and then select **Properties**.

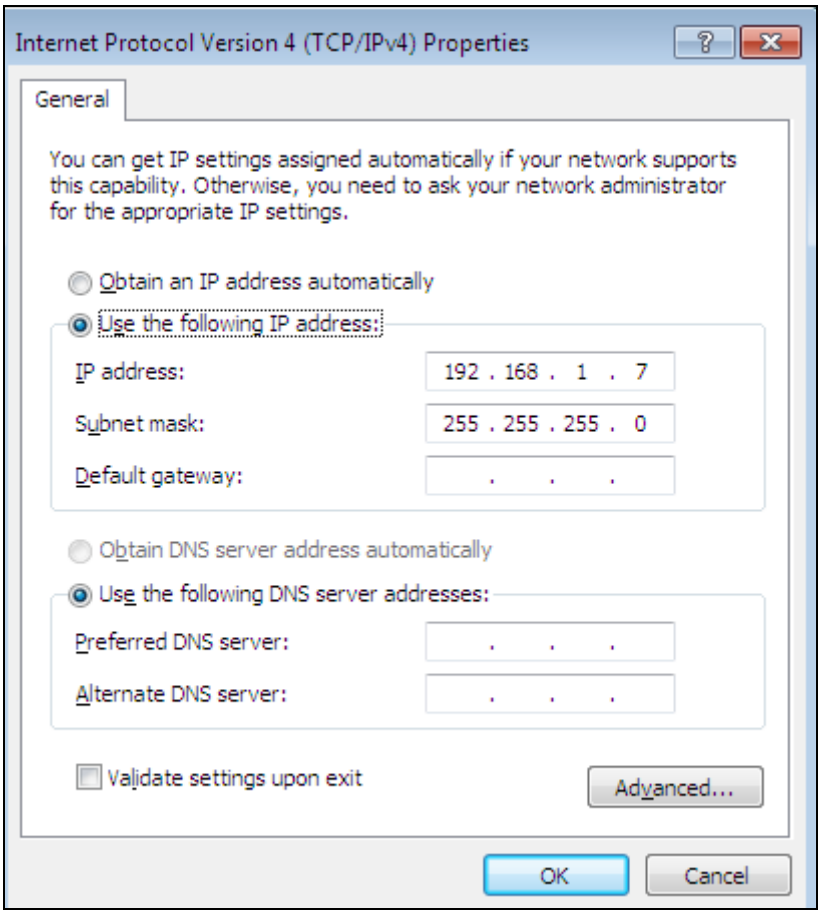


Note: During this procedure, click **Continue** whenever Windows displays a screen saying that it needs your permission to continue.

5 Select **Internet Protocol Version 4 (TCP/IPv4)** and then select **Properties**.



6 The **Internet Protocol Version 4 (TCP/IPv4) Properties** window opens.



7 Select **Obtain an IP address automatically** if your network administrator or ISP assigns your IP address dynamically.

Select **Use the following IP Address** and fill in the **IP address**, **Subnet mask**, and **Default gateway** fields if you have a static IP address that was assigned to you by your network administrator or ISP. You may also have to enter a **Preferred DNS server** and an **Alternate DNS server,** if that information was provided. Click **Advanced** if you want to configure advanced settings for IP, DNS and WINS.

8 Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.

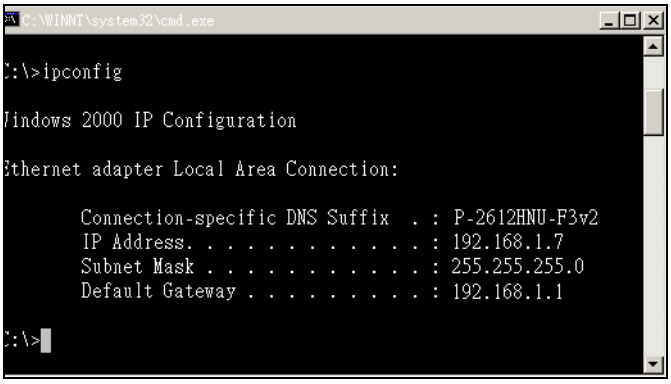
9 Click **OK** to close the **Local Area Connection Properties** window.

Verifying Settings

1 Click **Start** > **All Programs** > **Accessories** > **Command Prompt**.

2 In the **Command Prompt** window, type "ipconfig" and then press [ENTER].

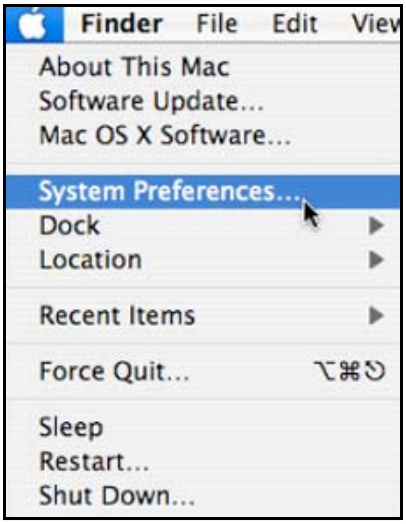
3 The IP settings are displayed as follows.



Mac OS X: 10.3 and 10.4

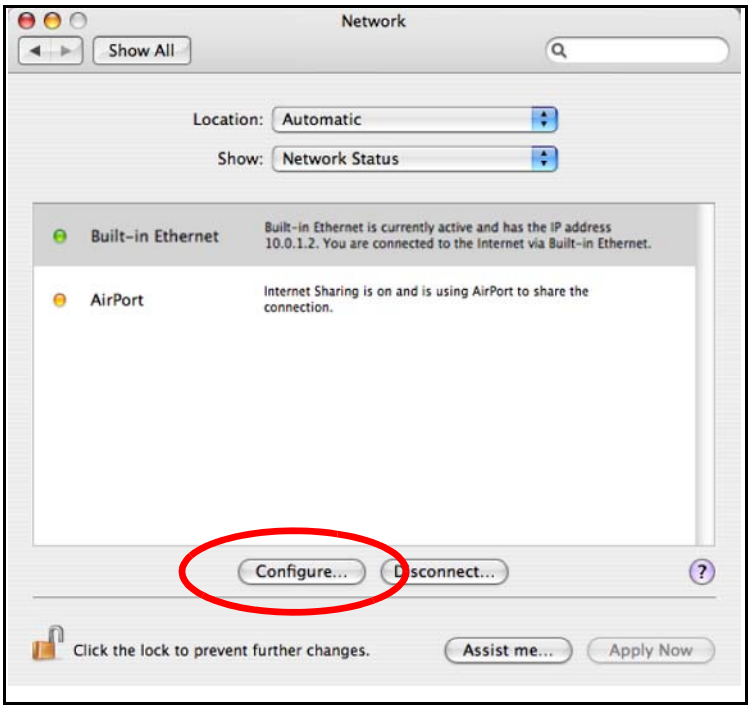
The screens in this section are from Mac OS X 10.4 but can also apply to 10.3.

1 Click **Apple** > **System Preferences**.

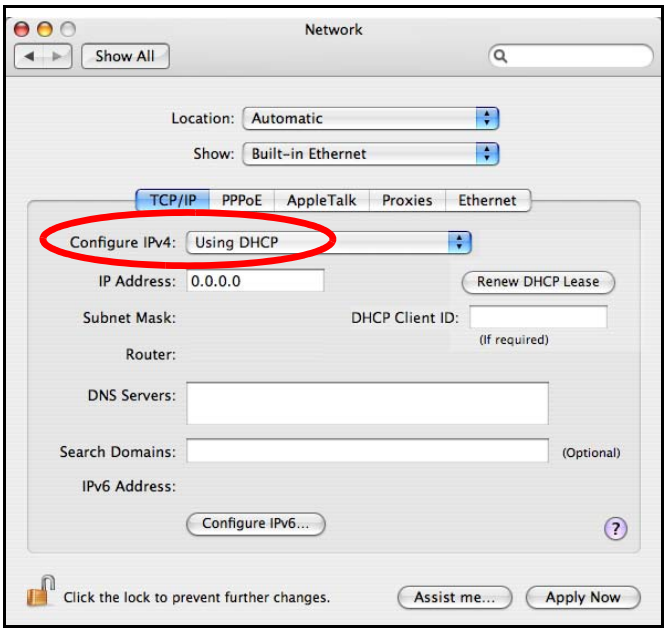


2 In the **System Preferences** window, click the **Network** icon.

3 When the **Network** preferences pane opens, select **Built-in Ethernet** from the network connection type list, and then click **Configure.**

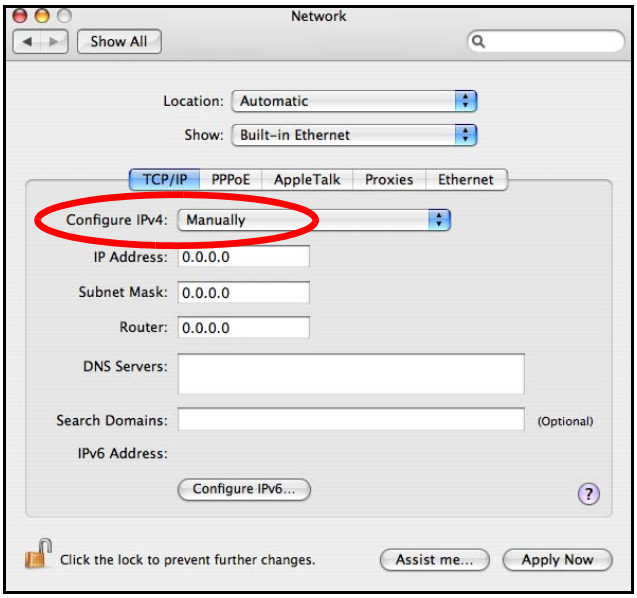


4 For dynamically assigned settings, select **Using DHCP** from the **Configure IPv4** list in the **TCP/IP** tab.



5 For statically assigned settings, do the following:

- From the **Configure IPv4** list, select **Manually**.
- In the **IP Address** field, type your IP address.
- In the **Subnet Mask** field, type your subnet mask.
- In the **Router** field, type the IP address of your device.

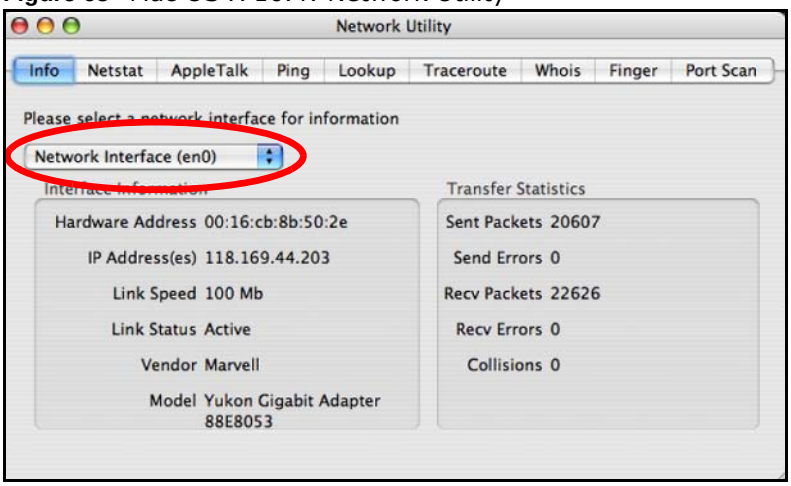


6 Click **Apply Now** and close the window.

Verifying Settings

Check your TCP/IP properties by clicking **Applications > Utilities > Network Utilities**, and then selecting the appropriate **Network Interface** from the **Info** tab.

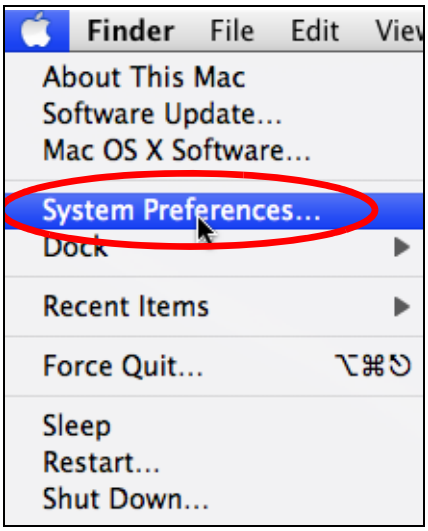
Figure 63 Mac OS X 10.4: Network Utility



Mac OS X: 10.5 and 10.6

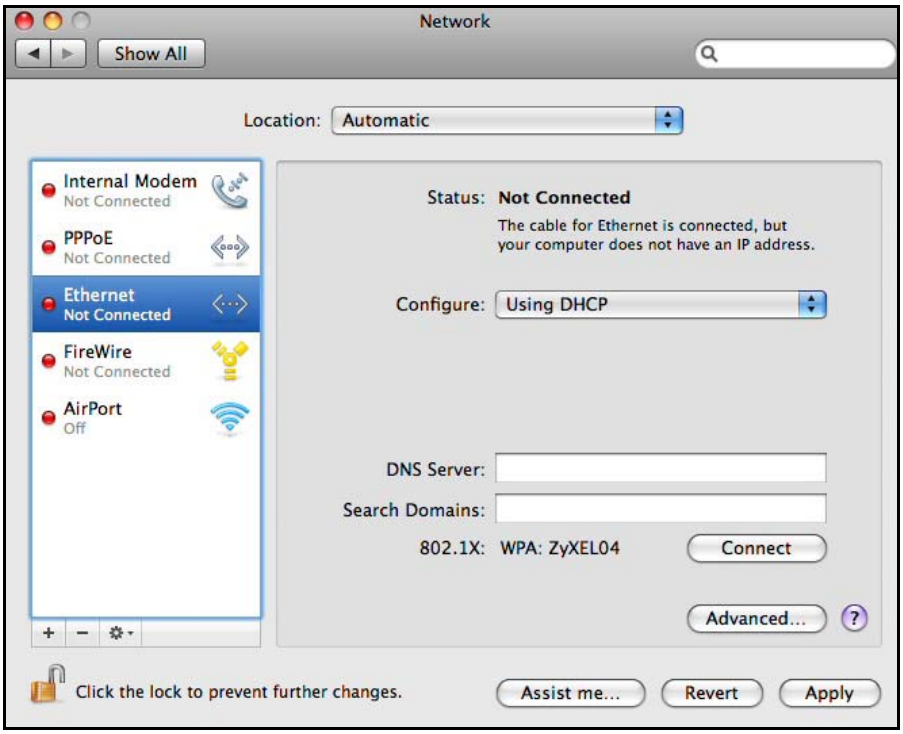
The screens in this section are from Mac OS X 10.5 but can also apply to 10.6.

1 Click **Apple** > **System Preferences**.



2 In **System Preferences**, click the **Network** icon.

3 When the **Network** preferences pane opens, select **Ethernet** from the list of available connection types.

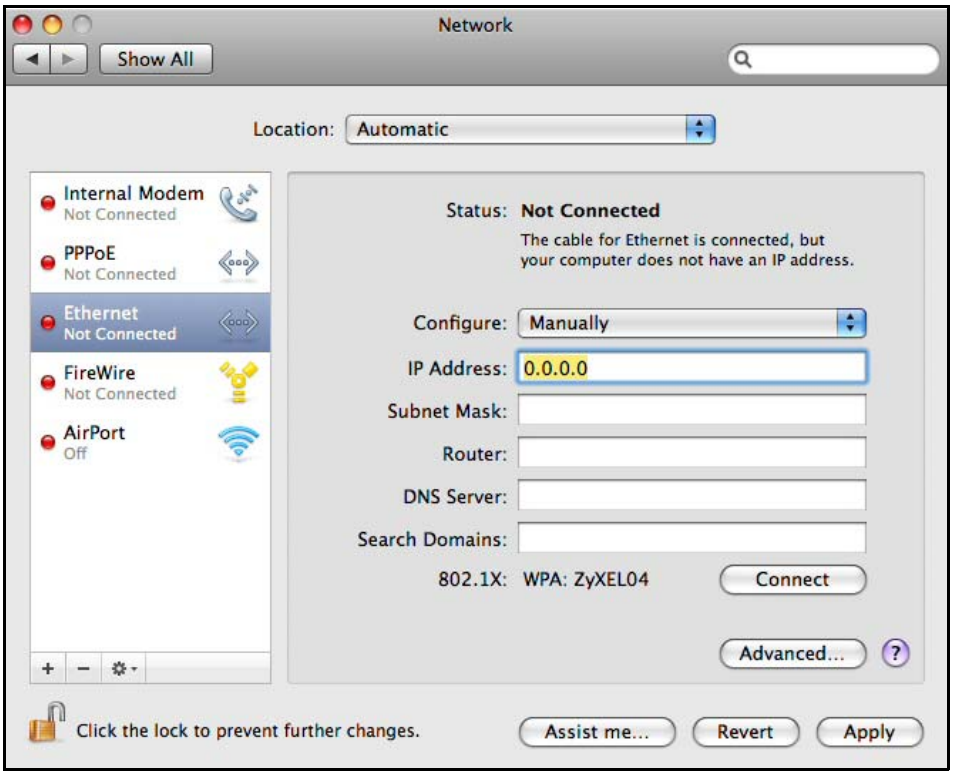


4 From the **Configure** list, select **Using DHCP** for dynamically assigned settings.

5 For statically assigned settings, do the following:

- From the **Configure** list, select **Manually**.
- In the **IP Address** field, enter your IP address.

- In the **Subnet Mask** field, enter your subnet mask.
- In the **Router** field, enter the IP address of your WRE6505.

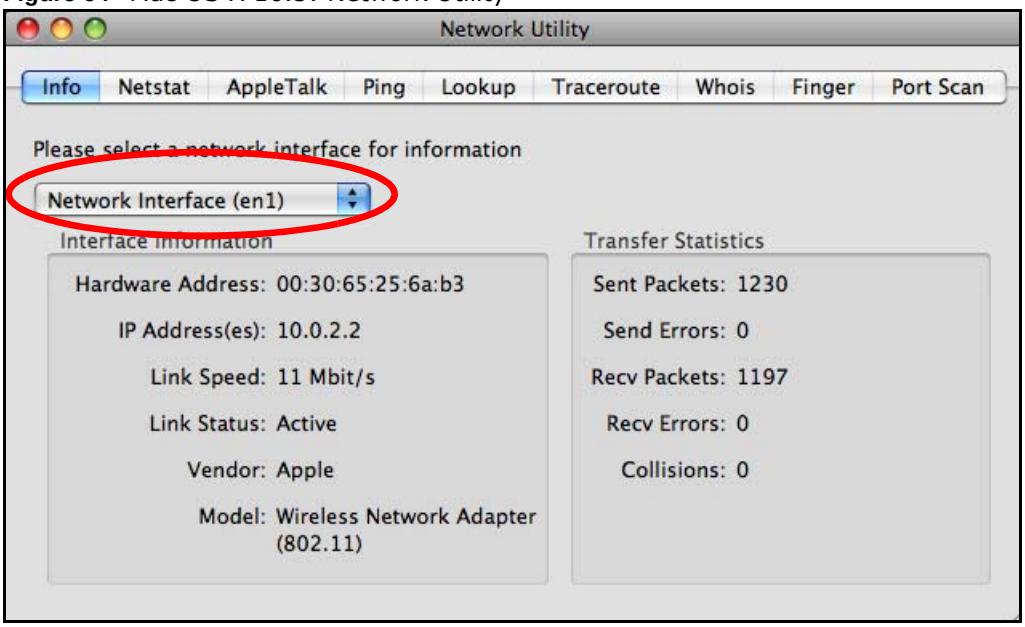


6 Click **Apply** and close the window.

Verifying Settings

Check your TCP/IP properties by clicking **Applications > Utilities > Network Utilities**, and then selecting the appropriate **Network interface** from the **Info** tab.

Figure 64 Mac OS X 10.5: Network Utility



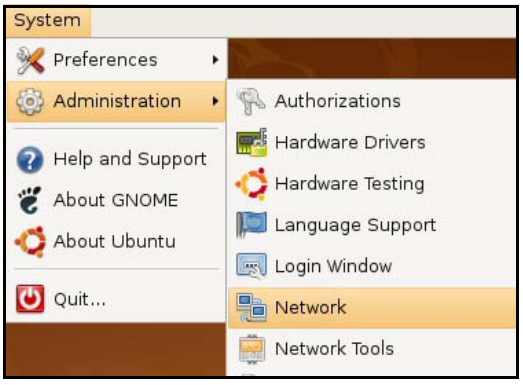
Linux: Ubuntu 8 (GNOME)

This section shows you how to configure your computer's TCP/IP settings in the GNU Object Model Environment (GNOME) using the Ubuntu 8 Linux distribution. The procedure, screens and file locations may vary depending on your specific distribution, release version, and individual configuration. The following screens use the default Ubuntu 8 installation.

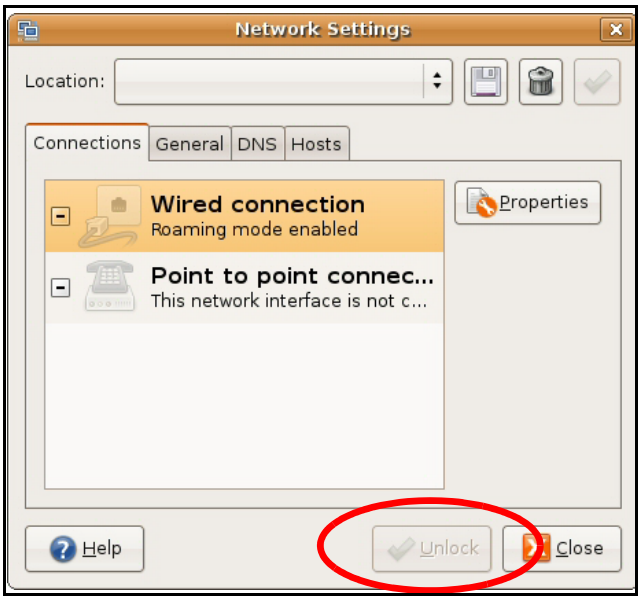
Note: Make sure you are logged in as the root administrator.

Follow the steps below to configure your computer IP address in GNOME:

1 Click **System > Administration > Network**.

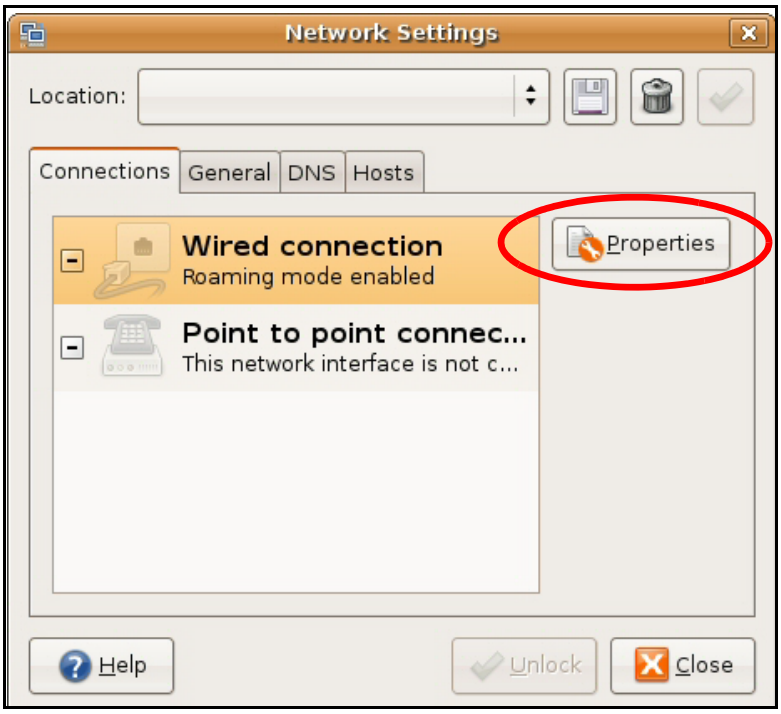


2 When the **Network Settings** window opens, click **Unlock** to open the **Authenticate** window. (By default, the **Unlock** button is greyed out until clicked.) You cannot make changes to your configuration unless you first enter your admin password.



3 In the **Authenticate** window, enter your admin account name and password then click the **Authenticate** button.

4 In the **Network Settings** window, select the connection that you want to configure, then click **Properties**.

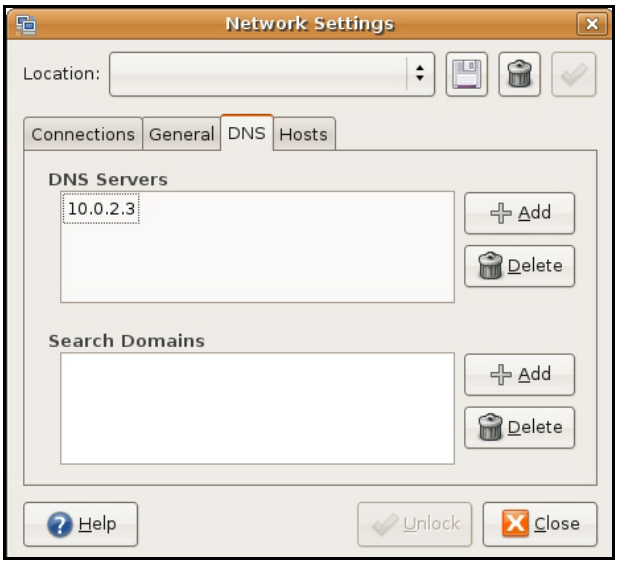


5 The **Properties** dialog box opens.

- In the **Configuration** list, select **Automatic Configuration (DHCP)** if you have a dynamic IP address.
- In the **Configuration** list, select **Static IP address** if you have a static IP address. Fill in the **IP address**, **Subnet mask**, and **Gateway address** fields.

6 Click **OK** to save the changes and close the **Properties** dialog box and return to the **Network Settings** screen.

7 If you know your DNS server IP address(es), click the **DNS** tab in the **Network Settings** window and then enter the DNS server information in the fields provided.

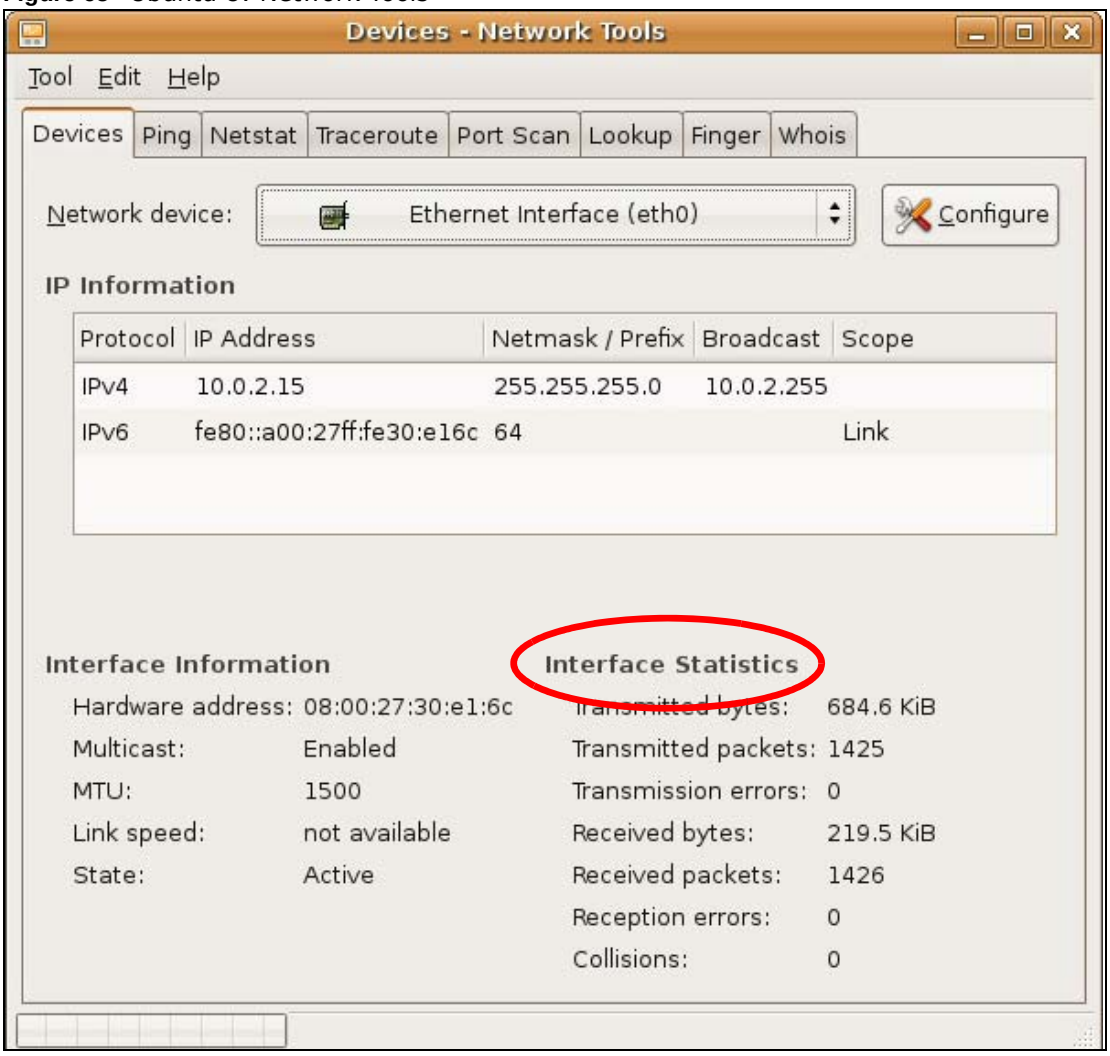


8 Click the **Close** button to apply the changes.

Verifying Settings

Check your TCP/IP properties by clicking **System > Administration > Network Tools**, and then selecting the appropriate **Network device** from the **Devices** tab. The **Interface Statistics** column shows data if your connection is working properly.

Figure 65 Ubuntu 8: Network Tools



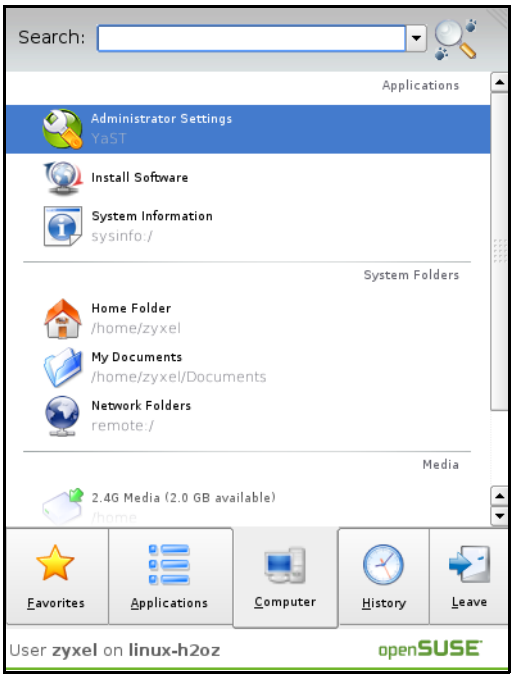
Linux: openSUSE 10.3 (KDE)

This section shows you how to configure your computer's TCP/IP settings in the K Desktop Environment (KDE) using the openSUSE 10.3 Linux distribution. The procedure, screens and file locations may vary depending on your specific distribution, release version, and individual configuration. The following screens use the default openSUSE 10.3 installation.

Note: Make sure you are logged in as the root administrator.

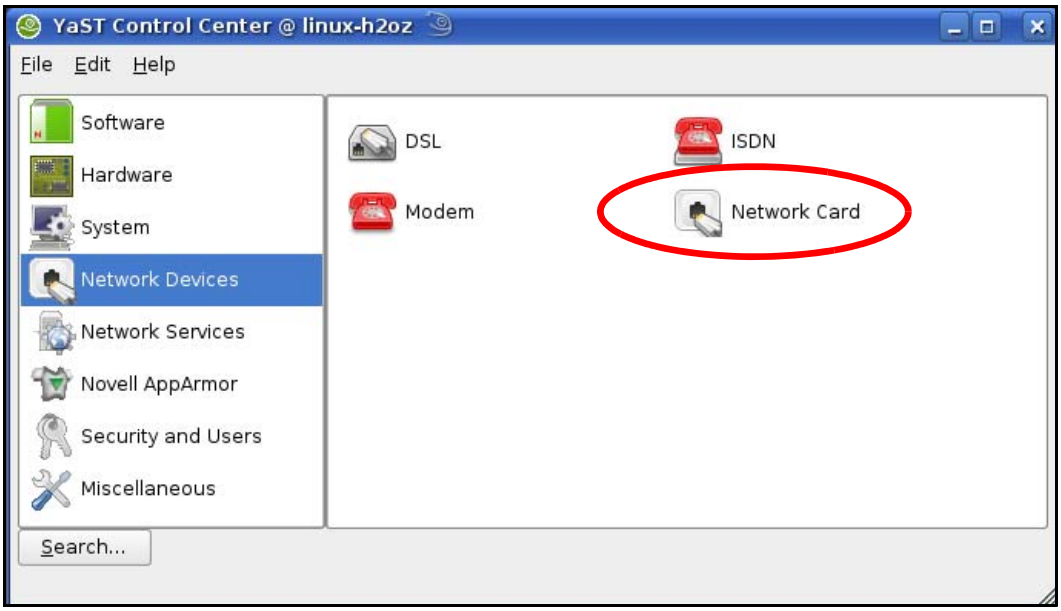
Follow the steps below to configure your computer IP address in the KDE:

1 Click **K Menu > Computer > Administrator Settings (YaST)**.

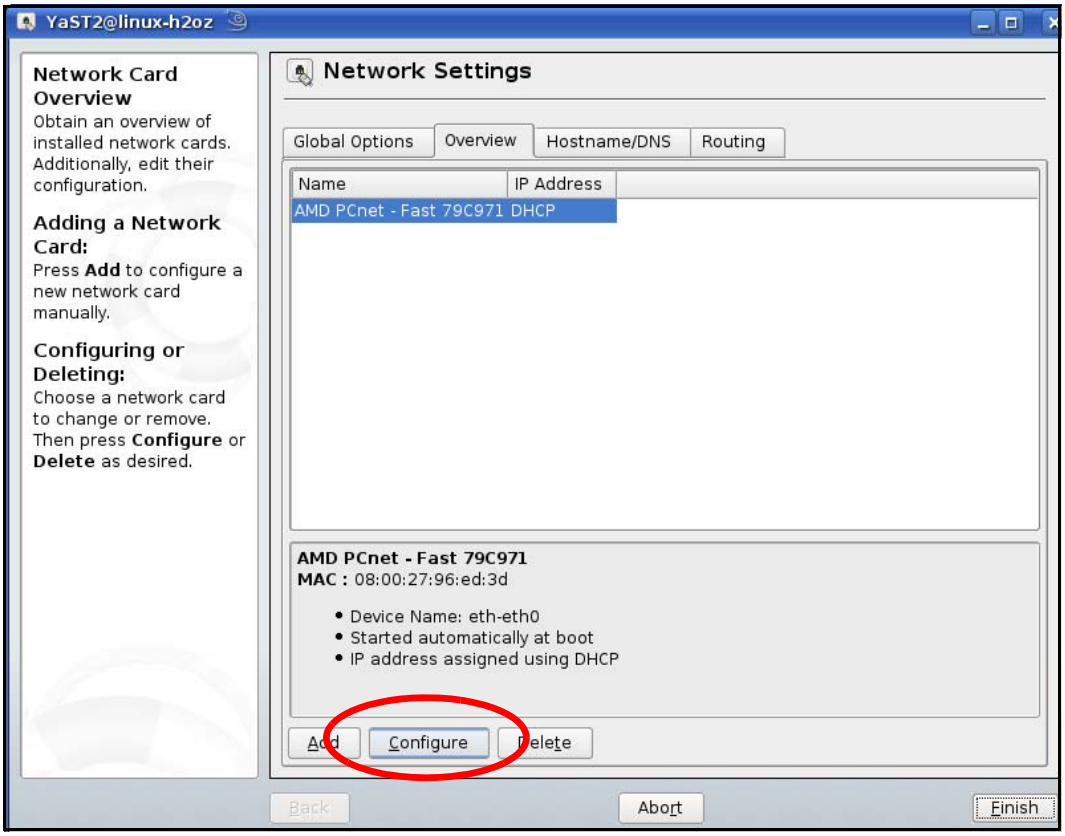


2 When the **Run as Root - KDE su** dialog opens, enter the admin password and click **OK**.

3 When the **YaST Control Center** window opens, select **Network Devices** and then click the **Network Card** icon.

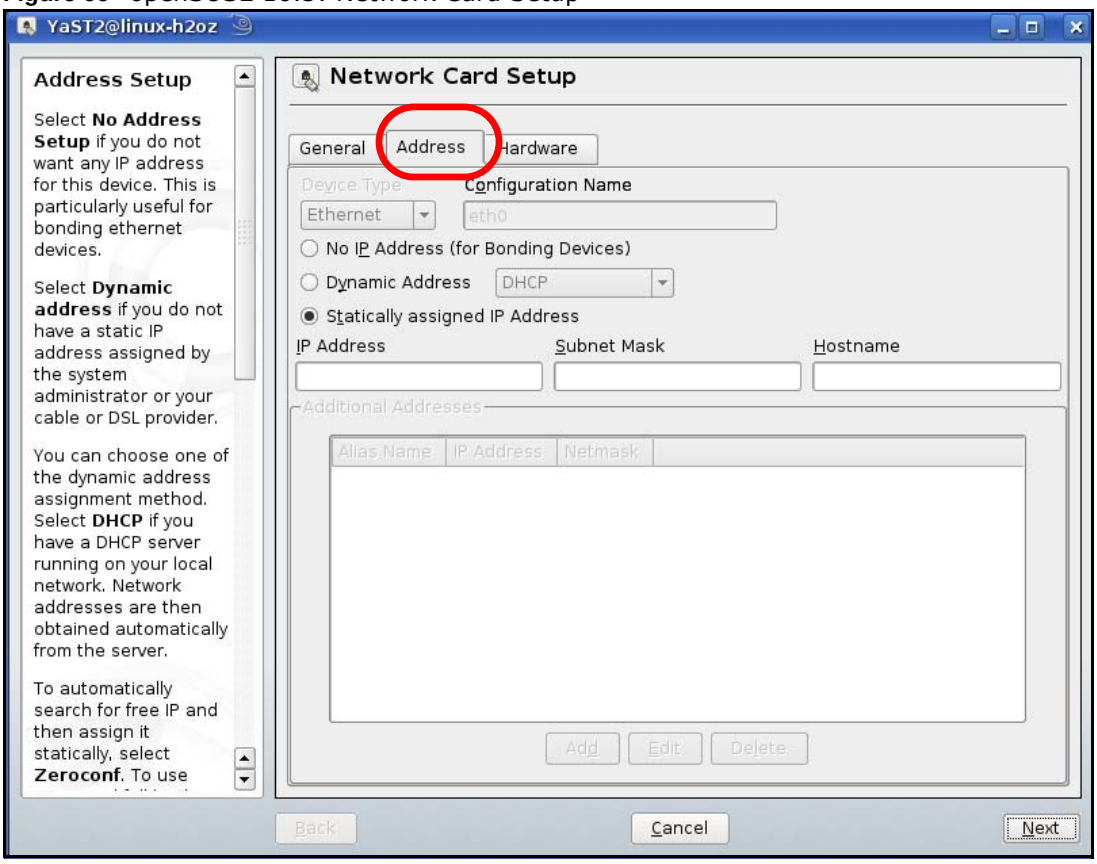


4 When the **Network Settings** window opens, click the **Overview** tab, select the appropriate connection **Name** from the list, and then click the **Configure** button.



5 When the **Network Card Setup** window opens, click the **Address** tab

Figure 66 openSUSE 10.3: Network Card Setup

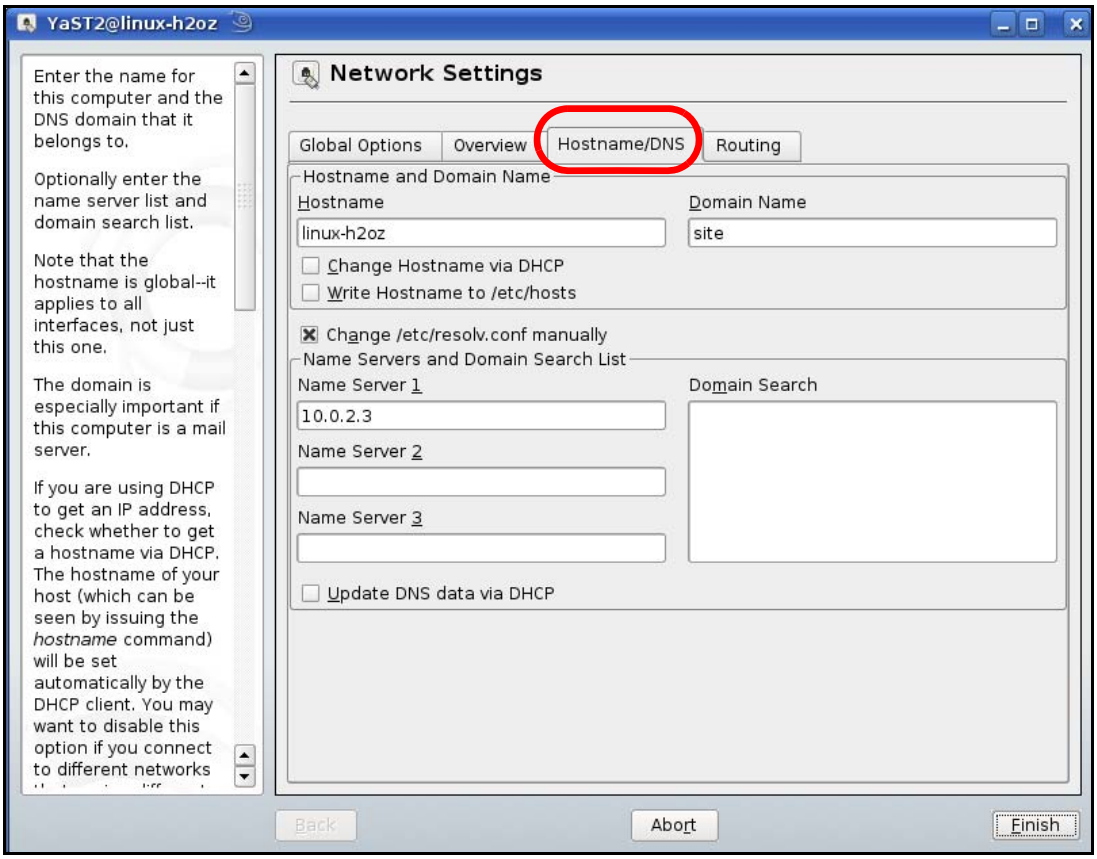


6 Select **Dynamic Address (DHCP)** if you have a dynamic IP address.

Select **Statically assigned IP Address** if you have a static IP address. Fill in the **IP address**, **Subnet mask**, and **Hostname** fields.

7 Click **Next** to save the changes and close the **Network Card Setup** window.

8 If you know your DNS server IP address(es), click the **Hostname/DNS** tab in **Network Settings** and then enter the DNS server information in the fields provided.

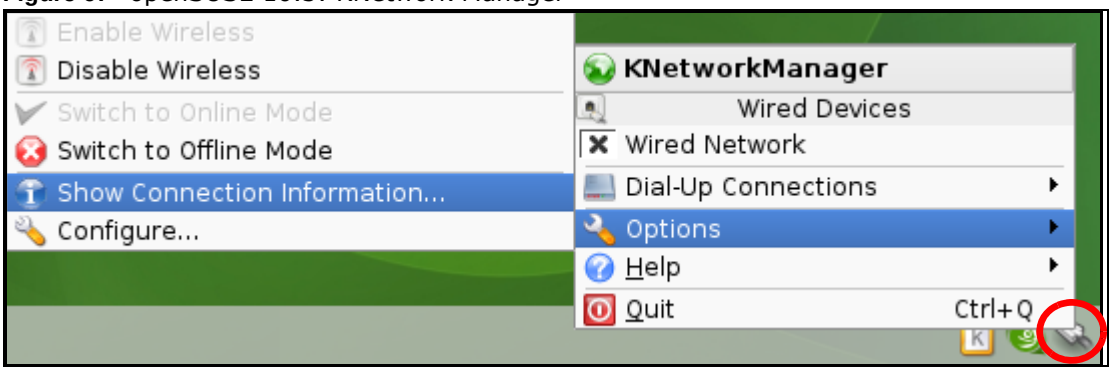


9 Click **Finish** to save your settings and close the window.

Verifying Settings

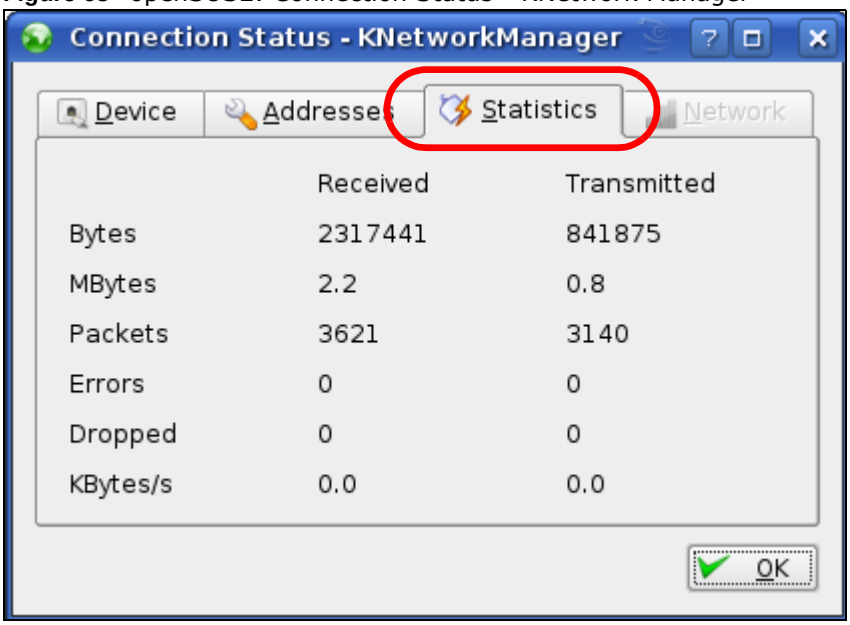
Click the **KNetwork Manager** icon on the **Task bar** to check your TCP/IP properties. From the **Options** sub-menu, select **Show Connection Information**.

Figure 67 openSUSE 10.3: KNetwork Manager



When the **Connection Status - KNetwork Manager** window opens, click the **Statistics tab** to see if your connection is working properly.

Figure 68 openSUSE: Connection Status - KNetwork Manager



B

Legal Information

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Certifications

Federal Communications Commission (FCC) Interference Statement

The device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operations.

This device has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this device does cause harmful interference to radio/television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement

- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- IEEE 802.11b, 802.11g or 802.11n (20MHz) operation of this product in the U.S.A. is firmware-limited to channels 1 through 11. IEEE 802.11n (40MHz) operation of this product in the U.S.A. is firmware-limited to channels 3 through 9.
- To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

注意 ！

依據　低功率電波輻射性電機管理辦法

第十二條　經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條　低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
前項合法通信，指依電信規定作業之無線電信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Notices

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device has been designed for the WLAN 2.4 GHz network throughout the EC region and Switzerland, with restrictions in France.

Ce produit est conçu pour les bandes de fréquences 2,4 GHz conformément à la législation Européenne. En France métropolitaine, suivant les décisions n°03-908 et 03-909 de l'ARCEP, la puissance d'émission ne devra pas dépasser 10 mW (10 dB) dans le cadre d'une installation Wi-Fi en extérieur pour les fréquences comprises entre 2454 MHz et 2483,5 MHz.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Viewing Certifications

Go to http://www.zyxel.com to view this product's documentation and certifications.

ZyXEL Limited Warranty

ZyXEL warrants to the original end user (purchaser) that this product is free from any defects in material or workmanship for a specific period (the Warranty Period) from the date of purchase. The Warranty Period varies by region. Check with your vendor and/or the authorized ZyXEL local distributor for details about the Warranty Period of this product. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, ZyXEL will, at its discretion, repair or replace the defective products or components without charge for either parts or labor, and to whatever extent it shall deem necessary to restore the product or components to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal or higher value, and will be solely at the discretion of ZyXEL. This warranty shall not apply if the product has been modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions.

Note

Repair or replacement, as provided under this warranty, is the exclusive remedy of the purchaser. This warranty is in lieu of all other warranties, express or implied, including any implied warranty of merchantability or fitness for a particular use or purpose. ZyXEL shall in no event be held liable for indirect or consequential damages of any kind to the purchaser.

To obtain the services of this warranty, contact your vendor. You may also refer to the warranty policy for the region in which you bought the device at http://www.zyxel.com/web/support_warranty_info.php.

Registration

Register your product online to receive e-mail notices of firmware upgrades and information at www.zyxel.com for global products, or at www.us.zyxel.com for North American products.

Open Source Licenses (all products)

This product contains in part some free software distributed under GPL license terms and/or GPL like licenses. Open source licenses are provided with the firmware package. You can download the latest firmware at www.zyxel.com. To obtain the source code covered under those Licenses, please contact support@zyxel.com.tw to get it.

Regulatory Information

European Union

The following information applies if you use the product within the European Union.

Declaration of Conformity with Regard to EU Directive 1999/5/EC (R&TTE Directive)

Compliance Information for 2.4GHz and 5GHz Wireless Products Relevant to the EU and Other Countries Following the EU Directive 1999/5/EC (R&TTE Directive)

[Czech]	ZyXEL tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/EC.
[Danish]	Undertegnede ZyXEL erklærer herved, at følgende udstyr udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
[German]	Hiermit erklärt ZyXEL, dass sich das Gerät Ausstattung in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EU befindet.
[Estonian]	Käesolevaga kinnitab ZyXEL seadme seadmed vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, ZyXEL declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
[Spanish]	Por medio de la presente ZyXEL declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
[Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ ZyXEL ΔΗΛΩΝΕΙ ΟΤΙ εξοπλισμός ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕC.
[French]	Par la présente ZyXEL déclare que l'appareil équipements est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/EC.
[Italian]	Con la presente ZyXEL dichiara che questo attrezzatura è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
[Latvian]	Ar šo ZyXEL deklarē, ka iekārtas atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
[Lithuanian]	Šiuo ZyXEL deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
[Dutch]	Hierbij verklaart ZyXEL dat het toestel uitrusting in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EC.
[Maltese]	Hawnhekk, ZyXEL, jiddikjara li dan tagħmir jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.

[Hungarian]	Alulírott, ZyXEL nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EK irányelv egyéb elõírásainak.
[Polish]	Niniejszym ZyXEL oświadcza, że sprzęt jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
[Portuguese]	ZyXEL declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/EC.
[Slovenian]	ZyXEL izjavlja, da je ta oprema v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/EC.
[Slovak]	ZyXEL týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/EC.
[Finnish]	ZyXEL vakuuttaa täten että laitteet tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
[Swedish]	Härmed intygar ZyXEL att denna utrustning står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EC.
[Bulgarian]	С настоящото ZyXEL декларира, че това оборудване е в съответствие със съществените изисквания и другите приложими разпоредбите на Директива 1999/5/EC.
[Icelandic]	Hér með lýsir, ZyXEL því yfir að þessi búnaður er í samræmi við grunnkröfur og önnur viðeigandi ákvæði tilskipunar 1999/5/EC.
[Norwegian]	Erklærer herved ZyXEL at dette utstyret er I samsvar med de grunnleggende kravene og andre relevante bestemmelser I direktiv 1999/5/EF.
[Romanian]	Prin prezenta, ZyXEL declară că acest echipament este în conformitate cu cerinţele esenţiale şi alte prevederi relevante ale Directivei 1999/5/EC.

CE

National Restrictions

This product may be used in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Ce produit peut être utilisé dans tous les pays de l'UE (et dans tous les pays ayant transposés la directive 1999/5/CE) sans aucune limitation, excepté pour les pays mentionnés ci-dessous:

Questo prodotto è utilizzabile in tutte i paesi EU (ed in tutti gli altri paesi che seguono le direttive EU 1999/5/EC) senza nessuna limitazione, eccetto per i paesii menzionati di seguito:

Das Produkt kann in allen EU Staaten ohne Einschränkungen eingesetzt werden (sowie in anderen Staaten die der EU Direktive 1995/5/CE folgen) mit Außnahme der folgenden aufgeführten Staaten:

In the majority of the EU and other European countries, the 2, 4- and 5-GHz bands have been made available for the use of wireless local area networks (LANs). Later in this document you will find an overview of countries inwhich additional restrictions or requirements or both are applicable.

The requirements for any country may evolve. ZyXEL recommends that you check with the local authorities for the latest status of their national regulations for both the 2,4- and 5-GHz wireless LANs.

The following countries have restrictions and/or requirements in addition to those given in the table labeled "*Overview of Regulatory Requirements for Wireless LANs*":.

Overview of Regulatory Requirements for Wireless LANs			
Frequency Band (MHz)	Max Power Level (EIRP)[1] (mW)	Indoor ONLY	Indoor and Outdoor
2400-2483.5	100		V
5150-5350	200	V	
5470-5725	1000		V

Belgium

The Belgian Institute for Postal Services and Telecommunications (BIPT) must be notified of any outdoor wireless link having a range exceeding 300 meters. Please check http://www.bipt.be for more details.

Draadloze verbindingen voor buitengebruik en met een reikwijdte van meer dan 300 meter dienen aangemeld te worden bij het Belgisch Instituut voor postdiensten en telecommunicatie (BIPT). Zie http://www.bipt.be voor meer gegevens.

Les liaisons sans fil pour une utilisation en extérieur d'une distance supérieure à 300 mètres doivent être notifiées à l'Institut Belge des services Postaux et des Télécommunications (IBPT). Visitez http://www.ibpt.be pour de plus amples détails.

Denmark

In Denmark, the band 5150 - 5350 MHz is also allowed for outdoor usage.

I Danmark må frekvensbåndet 5150 - 5350 også anvendes udendørs.

France

For 2.4 GHz, the output power is restricted to 10 mW EIRP when the product is used outdoors in the band 2454 - 2483.5 MHz. There are no restrictions when used indoors or in other parts of the 2.4 GHz band. Check http://www.arcep.fr/ for more details.

Pour la bande 2.4 GHz, la puissance est limitée à 10 mW en p.i.r.e. pour les équipements utilisés en extérieur dans la bande 2454 - 2483.5 MHz. Il n'y a pas de restrictions pour des utilisations en intérieur ou dans d'autres parties de la bande 2.4 GHz. Consultez http://www.arcep.fr/ pour de plus amples détails.

R&TTE 1999/5/EC		
WLAN 2.4 – 2.4835 GHz		
IEEE 802.11 b/g/n		
Location	Frequency Range(GHz)	Power (EIRP)
Indoor (No restrictions)	2.4 – 2.4835	100mW (20dBm)
Outdoor	2.4 – 2.454	100mW (20dBm)
	2.454 – 2.4835	10mW (10dBm)

Italy

This product meets the National Radio Interface and the requirements specified in the National Frequency Allocation Table for Italy. Unless this wireless LAN product is operating within the boundaries of the owner's property, its use requires a "general authorization." Please check http://www.sviluppoeconomico.gov.it/ for more details.

Questo prodotto è conforme alla specifiche di Interfaccia Radio Nazionali e rispetta il Piano Nazionale di ripartizione delle frequenze in Italia. Se non viene installato all 'interno del proprio fondo, l'utilizzo di prodotti Wireless LAN richiede una "Autorizzazione Generale". Consultare http://www.sviluppoeconomico.gov.it/ per maggiori dettagli.

Latvia

The outdoor usage of the 2.4 GHz band requires an authorization from the Electronic Communications Office. Please check http://www.esd.lv for more details.

2.4 GHz frekvenèu joslas izmantoðanai ârpus telpâm nepiecieðama atïauja no Elektronisko sakaru direkcijas. Vairâk informâcijas: http://www.esd.lv.

Notes:

1. Although Norway, Switzerland and Liechtenstein are not EU member states, the EU Directive 1999/5/EC has also been implemented in those countries.

2. The regulatory limits for maximum output power are specified in EIRP. The EIRP level (in dBm) of a device can be calculated by adding the gain of the antenna used(specified in dBi) to the output power available at the connector (specified in dBm).

List of national codes

COUNTRY	ISO 3166 2 LETTER CODE	COUNTRY	ISO 3166 2 LETTER CODE
Austria	AT	Malta	MT
Belgium	BE	Netherlands	NL
Cyprus	CY	Poland	PL
Czech Republic	CR	Portugal	PT
Denmark	DK	Slovakia	SK
Estonia	EE	Slovenia	SI
Finland	FI	Spain	ES
France	FR	Sweden	SE
Germany	DE	United Kingdom	GB
Greece	GR	Iceland	IS
Hungary	HU	Liechtenstein	LI
Ireland	IE	Norway	NO
Italy	IT	Switzerland	CH
Latvia	LV	Bulgaria	BG
Lithuania	LT	Romania	RO
Luxembourg	LU	Turkey	TR

Safety Warnings

- Do NOT use this product near water, for example, in a wet basement or near a swimming pool.
- Do NOT expose your device to dampness, dust or corrosive liquids.
- Do NOT store things on the device.
- Do NOT install, use, or service this device during a thunderstorm. There is a remote risk of electric shock from lightning.
- Connect ONLY suitable accessories to the device.
- Do NOT open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel should service or disassemble this device. Please contact your vendor for further information.
- Make sure to connect the cables to the correct ports.
- Place connecting cables carefully so that no one will step on them or stumble over them.
- Always disconnect all cables from this device before servicing or disassembling.
- Use ONLY an appropriate power adaptor or cord for your device.

- Connect the power adaptor or cord to the right supply voltage (for example, 110V AC in North America or 230V AC in Europe).
- Do NOT allow anything to rest on the power adaptor or cord and do NOT place the product where anyone can walk on the power adaptor or cord.
- Do NOT use the device if the power adaptor or cord is damaged as it might cause electrocution.
- If the power adaptor or cord is damaged, remove it from the power outlet.
- Do NOT attempt to repair the power adaptor or cord. Contact your local vendor to order a new one.
- Do not use the device outside, and make sure all the connections are indoors. There is a remote risk of electric shock from lightning.
- Do NOT obstruct the device ventilation slots, as insufficient airflow may harm your device.
- Antenna Warning! This device meets ETSI and FCC certification requirements when using the included antenna(s). Only use the included antenna(s).
- If you wall mount your device, make sure that no electrical lines, gas or water pipes will be damaged.

Your product is marked with this symbol, which is known as the WEEE mark. WEEE stands for Waste Electronics and Electrical Equipment. It means that used electrical and electronic products should not be mixed with general waste. Used electrical and electronic equipment should be treated separately.

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